

**Minutes of the Air Traffic Procedures Advisory Committee (ATPAC) Meeting #148
6-7 May 2014**

**CGH Technologies, Inc., 600 Maryland Ave., SW, Suite 800W
Washington, DC 20024**

1 Opening of the Meeting

1.1 The 148th Meeting of the Air Traffic Procedures Advisory Committee (ATPAC) was called to order by Chair Lynette Jamison on Tuesday, May 6 at 9:00 a.m. The meeting was held at CGH Technologies, Inc., 600 Maryland Ave, SW, Suite 800W, Washington, DC.

1.2 Representatives from the Federal Aviation Administration (FAA), Air Line Pilots Association (ALPA), US Department of Defense (DOD), National Air Traffic Control Association (NATCA), National Business Aircraft Association (NBAA), Airline Owners and Pilots Association (AOPA), Airline Dispatchers Federation (ADF), Air Traffic Control Association (ATCA), and Helicopter Association International (HAI) attended as follows:

Heather Hemdal, Executive Director
Lynette Jamison, Chair
Kevin Aurandt, FAA/AJV-823
Andrew Burns, FAA/AFS-410
Mark Cato, ALPA
Keith Chandler, AJV-823
Larry Cole, HQ AFFSA/USAF
John Collins, General Aviation Pilot
Randy DeAngelis, FAA/AFS-410
Gary Fiske, FAA/AJV-8
Marc Gittleman, ALPA
Russell Gold, FAA/AJV-14
Jonathan Gray, FAA/AJI-15
Richard Kagehiro, FAA/AJV-8
James Keith, NATCA
Roger Kiely, SUPCOM

Robert Lamond, NBAA
Melissa McCaffrey, AOPA
Leslie McCormick, CSSI/AJV-8
Bruce McGray, FAA/AFS-410
Gary Norek, FAA/AJV-8
Mark Olsen, FAA
Philip Saenger, FAA/AFS-410
John Schwoyer, ADF
Scott Swain, US Navy
Jeffrey Tittsworth, FAA
Sydney Tutein, US Army
Matt Van Der Wal, US Air Force
Jeffrey Williams, ATCA
Jeffrey Woods, NATCA
David York, HAI

1.3 Heather Hemdal presented the Executive Director's Report, providing the following information:

a. Status of Areas of Concern (AOC):

- Number of open AOCs: 5
- Deferred AOCs from Mtg #147 to Mtg #148: 2
 - AOC 145-2 - Class G Airspace
 - New AOC Proposed on Terrain Clearance (to be proposed again at this meeting)
- Deferred AOCs from Previous Meetings to Mtg #148 – 0
- Deferred AOCs to future ATPAC Meetings: 2 Deferred until Published, 2 to be

closed at this meeting

- AOC 116-3 - Glide Slope Critical Area Advisory – *PUBLISHED 4/3/14. CLOSED.*
- AOC 141-1 Runway Guard Lights (RGL) – *Deferred until published*
- AOC 143-1 Use of 'DESCEND VIA [STAR] and MAINTAIN [altitude]' phraseology in NAV CANADA Bulletin – *PUBLISHED 4/3/14. CLOSED.*
- AOC 146-4 Availability of Instrument Flight Rules (IFR) departure clearance relative to ground based NAVAID proximity – *Deferred until published*
- Closed AOCs from Mtg #147: 6 Closed, 2 Withdrawn
 - AOC 102-2 4-8-1 Instrument Approach Clearances to Other than Initial Approach Fix (IAF)
 - AOC 123-2 Aircraft Vertical Performance Data
 - AOC 123-7 Four Digit Express Carrier Call Signs
 - AOC-126-2 Procedures for Use of Time to Climb/Meet Restrictions
 - AOC 145-3 ATIS Length (WITHDRAWN)
 - AOC 146-1 Amend FAA Policy to align airspace actions with visual flight rules (VFR) charting cycles
 - AOC 146-2 Amend Order 7400.2, Section 3-3-3 Naming of NAVAIDs, paragraph b. (WITHDRAWN)
 - AOC-146-3 CPC and Pilot Training on joining an RNAV Approach
- New AOCs proposed for discussion at Mtg #148:
 - 148-xx - MIA determination on Random RNAV Point to Point Routes – submitted by John Collins
 - 148-xx - ADS-B NOTAMS and Problem reporting – submitted by John Collins
 - 148-xx - Clearances below published altitudes on procedures and airways – submitted by John Collins
 - 148-xx - Procedure NA at Night – submitted by John Collins
- b. Briefings: NBAA requested that the meeting provide information on two new briefing topics:
 - Aeronautical Mobile Airport Communications System (AeroMACS)
 - Research/thinking underway about changing the definition and procedures for use of Class B airspace reference satellite airport traffic mixing in better

1.4 Lynette Jamison presented the Chair's Report, providing the following information:

- a. Report from the Aeronautical Charting Forum (ACF)
 - VOR Minimum Operational Network update
 - US Instrument Flight Procedures Panel
 - Instrument Landing System (ILS) Suffixes – V - converging
 - Touchdown Zone Elevation (TDZE) vs. Threshold Elevation (THRE) – there is a website on the digital terminal procedures publication (TPP) site that shows these
 - Cold Station Altimeter airports will be in Airport/Facility Directory (A/FD) and also charted
 - The Class E Surface Area charting issue will be elevated from the ACF to somewhere else in FAA
 - A/FD depiction of Traffic Pattern Altitude will start after the July cycle
 - Discussion of adding ATC radar phone numbers into the A/FD

- b. Review of Robert's Rules of Order: A brief review was provided on suggested procedures to be followed in relation to making a motion and discussion of a motion on the floor. (See **Attachment A**) In addition, materials were distributed to assist members in better understanding the procedures. (See **Attachments B and C**)

1.5 No new Safety Items were proposed to the meeting.

1.6 The meeting reviewed the ATPAC #147 Minutes. The following changes were requested:

- a. Mark Olsen, AJI-17, requested that the following sentence from the Minutes be removed from the section on Terrain Clearance: "In accordance with 7110.65, if an aircraft is provided with a vector/heading, then ATC accepts reasonability for terrain clearance. "

Rationale: This wording needs to be dropped or changed as it does not apply to VFR aircraft. ATC does not assume terrain avoidance responsibility with vectors below the MVA for VFR aircraft. As long as we (ATC) do not assign a VFR aircraft an altitude below the MVA while the aircraft is on or is turning to an assigned vector terrain avoidance is the pilot's responsibility not ATC. During ATPAC 147 the only thing that was briefly discussed near the end of the second day had to do with issuing departure headings to IFR aircraft. It was decided the topic would be delayed until ATPAC 148.

After discussion, the meeting agreed to delete the paragraph that read "In accordance with 7110.65, if an aircraft is provided with a vector/heading, then ATC accepts reasonability for terrain clearance. When a pilot requests a vector to avoid traffic, he assumes that ATC is providing terrain clearance."

- b. A further editorial correction was recommended and agreed in the section on Terrain Clearance. The reference to "diverse vector angles" was changed to read "diverse vector areas."
- c. Philip Saenger, SAIC, requested that his name be removed from the section on Takeoff/Landing Performance Assessment (TALPA) as he does not support that program.
- d. The ATPAC #147 Minutes were approved with the changes noted. The corrected Minutes will be posted on the ATPAC web site.

1.7 The meeting approved the following agenda. It was noted that four new AOCs had been proposed for discussion and a presentation on the discontinuation of World Aeronautical Charts (WAC) would be provided.

- a. Call to Order/Roll Call
- b. Recognition of Attendees
- c. Executive Director's Report
- d. Chair's Report
- e. Call for Safety Items
- f. Approval of ATPAC #147 Minutes
- g. Review of Agenda Items and Call for New Agenda Items

- h. Introduction of New AOCs or Miscellaneous Items
- i. Briefings
- j. Status Updates to Existing AOCs
- k. Deferred AOCs
- l. Recurring Agenda Items
- m. Discussion on New Agenda Items
- n. Location and Dates for Future Meetings
- o. Adjourn

2 Introduction of New AOCs or Miscellaneous Items

Proposed AOC on Terrain Clearance - Bruce McGray, AFS-410

2.1 This was initially introduced at ATPAC 147 where the meeting discussed whether a VFR pilot flying VFR asking for a vector to avoid traffic is responsible for his own terrain avoidance if he is below the minimum vectoring altitude (MVA). The issue was deferred to ATPAC 148 to allow time for more research.

2.2 Bruce presented a briefing (see **Attachment D**) noting that the understanding of the terms “vector” and “heading” can be misleading due to a lack of continuity between the FAA Order 7110.65 Pilot Controller Glossary (PCG), the Aeronautical Information Manual (AIM) and the Instrument Procedures Handbook (IPH).

2.3 The briefing noted that when air traffic control (ATC) handles the IFR departure, pilots know the facility has assumed terrain clearance responsibility. “Heading” and “vector” mean the same thing to pilots following those instructions. One exception is when the pilot is instructed to climb into controlled airspace to a point where radar contact is made and aircraft cleared IFR. Both pilots and controllers need better training on terrain clearance responsibilities.

2.4 The presentation also offered a list of issues that were attributed to work of the ATC Handbook Rewrite Group. Roger Kiely stated that the ATC Handbook Rewrite Group was not working those issues. The ATC Handbook Rewrite Group has agreed to work eight specific issues and prepare the Document Change Proposals (DCPs). The Class G definition will not be changed in September based on the amount of work yet to be done. Many facilities are eliminating their Class G airspace above 1200 ft above ground level (AGL).

2.5 The ATC Handbook Rewrite Group, in an attempt to clarify paragraph 4-2-8d, is looking for guidance/clarification on issuing an IFR clearance to a VFR aircraft that may be below the minimum IFR altitude (MIA)/minimum enroute altitude (MEA) and it is unknown to the controller whether or not the aircraft can climb in visual meteorological conditions (VMC). This happens frequently when pop-up VFR aircraft have already departed from an airport and are no longer within the area covered by any reported weather. The controller has no knowledge of flight conditions, nor will they ask. The only way a controller would know this is by the pilot informing ATC that a VMC climb is not possible. There is no requirement to solicit this information from every pop-up aircraft. The safety issue is when a controller issues a clearance in this case and a pilot accepts it thinking ATC is providing terrain/obstacle avoidance. There are no proposed changes to the ATC Handbook until there is clarification from Flight Standards.

2.6 Additionally, discussions regarding ATC vs. pilot roles and responsibilities when clearing aircraft IFR off of uncontrolled airports are still needed, but not to detract from the issue above. It is the opinion of ATC that ATC is providing the required obstacle avoidance only when assigning obstacle departure procedures (ODPs). When an aircraft is only cleared as filed without an ODP assignment, it is up to the

pilot whether or not any ODP will be flown. Having not been assigned an ODP, the pilot determines the best course of action to depart the airport which could be the election to fly an ODP. ATC will not be providing protection to the pilot for terrain/obstacle avoidance until the flight has reached the MIA/MEA.

2.7 Additionally, ATC may assign a heading to be flown after departure for operational reasons, such as traffic, and in those cases are required to ask the pilot if the assigned heading will comply with terrain and obstruction avoidance. The pilot again is responsible for terrain and obstruction avoidance in this case.

2.8 It was clarified that the Class G issue is different from the VFR to IFR issue. The AOC needs to be revised to focus on terrain clearance responsibility. Questions such as “Is a heading off the ground a vector?” and “Who has the responsibility for terrain clearance?” need to be answered. The action is with Bruce to propose a new AOC to ATPAC.

Proposed AOC 148-xx – Minimum IFR Altitude (MIA) determination on Random RNAV Point to Point Routes

2.9 This AOC was proposed by John Collins with the following information:

DISCUSSION: With the updated 7110.65V, 6–5–4 (a) (4) Minima along Other Than Established Airways or Routes states the following:

4. GNSS-equipped RNAV aircraft provided non-radar separation on random RNAV routes must be cleared via or reported to be established on point-to-point route segments.

(a) The points must be published NAVAIDs, waypoints, fixes, or airports recallable from the aircraft’s navigation database. The points must be displayed on controller video maps or depicted on the controller chart displayed at the control position. The maximum distance between points must not exceed 500 miles.

(b) Protect 4 miles either side of the route centerline.

(c) Assigned altitudes must be at or above the highest MIA along the projected route segment being flown, including the protected airspace of that route segment.

Discussing this with various controllers, they indicated they did not have a means of determining the MIA along a specific RNAV point to point route.

SUGGESTED ATPAC ACTION: Provide a tool to controllers so they can determine an MIA along an RNAV point to point route.

2.10 ATPAC members discussed the proposal and the point was made that a controller does not know the MIA along the entire route segment, which could be as much as 500 miles long and span several control sectors. The controller is responsible not to allow a flight to operate below the MIA in his/her sector. The FAA does not have a tool that would display the information as proposed, nor was it considered that it would be a viable option for all controllers.

2.11 Based on the discussion, the submitter withdrew the AOC.

New AOC 148-01 – Automatic Dependent Surveillance – Broadcast (ADS-B) Notices to Airmen (NOTAMS) and Problem reporting

2.12 This AOC was presented by John Collins with the following information (see **Attachment E**):

DISCUSSION: The ADS-B infrastructure is now fully installed in the CONUS and Alaska according to the announcement 4-14-2014. Each ADS-B NOTAM indicating that service is now available includes text similar to this one:

!FDC 3/7975 (KCLT A0135/13) CLT CHARLOTTE/DOUGLAS INTERNATIONAL AIRPORT AIRSPACE ADS-B SERVICES TISB AND FISB AVBL MARCH 15, 2012. TIS-B SERVICE IS AVAILABLE THROUGHOUT THE NAS WHERE THERE ARE BOTH ADEQUATE SURVEILLANCE COVERAGE (RADAR) AND BROADCAST COVERAGE FROM ADS-B GROUND STATIONS. REPORTS OF TIS-B AND FIS-B MALFUNCTIONS SHOULD BE REPORTED BY RADIO OR TELEPHONE TO THE NEAREST FSS FACILITY.

I wished to report such an issue. No one at any FSS had any clue as to what I was talking about. After escalating to a management level and a few weeks of waiting for a response, the manager indicated that there were no such instructions or procedure available. The issue I wanted to report had to do with TISB at one particular location providing traffic ghosts of my aircraft which is ADS-B equipped.

SUGGESTED ATPAC ACTION: Develop an appropriate procedure for reporting and resolving FISB and TISB problems.

2.13 The AIM contains a procedure for reporting malfunctions and provides a web link and phone number for reporting. The links do not work, and nobody responded to a message left at the phone number indicated.

2.14 Lynette Jamison agreed to contact Preston Barber in the FAA Surveillance and Broadcast Services (SBS) Program Office and ask him to work with Flight Service on what information needs to be gathered and what to do with reports received. It was suggested that the AIM should also contain the recommended information for a pilot to provide in the report. Two questions were raised: (1) Do we want the data collected? and if so, (2) What is the process to collect the data?

2.15 ATPAC accepted the new AOC, which will be AOC 148-01. An update will be requested for the next meeting.

New AOC 148-02- Clearances below published altitudes on procedures and airways

2.16 This AOC was presented by John Collins with the following information (see also **Attachments F and G**):

DISCUSSION: There are many reports from pilots that ATC is clearing an aircraft to fly altitudes below published minimums on approaches and airways. This is a dangerous practice as evidenced by the fatal accident in Alaska by “NTSB Identification: ANC13FA030 Nonscheduled 14 CFR Part 135: Air Taxi & Commuter Accident occurred Friday, March 08, 2013 in Aleknagik, AK Aircraft: BEECH 1900C, registration: N116AX.” Excerpts from the preliminary accident report:

“On March 8, 2013, about 0814 Alaska standard time, a twin-engine turboprop Beech 1900C airplane, N116AX, was destroyed when it impacted rising terrain about 10 miles east of Aleknagik, Alaska.”

“According to Federal Aviation Administration (FAA) personnel, as the airplane approached Dillingham, the flight crew requested the RNAV GPS 19 instrument approach to the Dillingham Airport about 0757 from controllers at the Anchorage Air Route Traffic Control Center (ARTCC). The ARTCC specialist on duty subsequently granted the request by issuing the clearance, with instructions to proceed direct to the Initial Approach Fix (IAF) to begin the approach, and to maintain an altitude of 2,000 feet or above.”

Example: KGFL GFL V91 ALB, a pilot reports he always gets V91, maintain 3000. This is not a vector direct ALB. The MEA is 7000 with a 5000G on the chart. There isn't a MOCA published for this route segment. I think this is a safe altitude, but it is setting a bad precedent. Most likely in this case, the MEA is set for flight in the other direction to make a crossing altitude. The chart should be changed if this is the case, rather than regularly breaking the rule and assigning an altitude below the published MEA.

Pilot anecdote 1:

“It did happen to me yesterday. While enroute from Santa Barbara to Santa Maria on an IFR clearance, I departed GVO on V27, at 6000', and about 5 miles later, was cleared direct ELZUS, which is the IF for my requested RNAV 30 approach. Within a minute or so, I was told to descend and maintain 3000. I noticed the 3500 minimum altitude for the segment I was flying, and queried the controller about his 3000' clearance. He re-affirmed his altitude instruction. A few minutes later, he said to cross ELZUS at or above 3000', cleared for the RNAV 30 approach to KSMX.”

Pilot anecdote 2:

“Timely discussion. Day before yesterday I was flying into KAAF from the north. 'Twas a murkey day, overcast 600. Tyndall approach cleared me to FEZCU, descend and maintain 2000. Problem is that the segment minimum is 2300, and FEZCU is to be crossed at or above 2300. Admittedly this isn't a real problem...given that most of the approach is over the gulf, but”

Controllers have to follow the approach chart just like pilots and when they improvise with lower altitudes, it doesn't always work out as was the case in Alaska,

SUGGESTED ATPAC ACTION: Clarify the conditions under which ATC may clear an aircraft on a charted route or procedure at an altitude below the charted minimum. Update the AIM to provide guidance to pilots and if needed, clarify 7110.65V.

2.17 During the discussion, it was noted that, in accordance with FAA Order 7110.65V, para 4-5-6, an aircraft may be cleared below the minimum enroute altitude (MEA) but not below the minimum obstruction clearance altitude (MOCA). In the situation where an aircraft is on an airway and no MOCA is published, the aircraft should be at or above the MEA. In the case cited in the AOC, the aircraft should have been cleared at or above the altitude published at the initial approach fix (IAF).

2.18 A question also was raised as to why no MOCA was published. This is a flight procedures and charting issue and will be referred to the ACF.

2.19 The AOC was accepted and action assigned to AJV-8, who will provide an update at the next meeting.

Proposed AOC – Procedure Not Applicable (NA) at Night

2.20 This AOC was proposed by John Collins with the following information (see also **Attachments H and I**):

DISCUSSION: More and more Instrument Approaches are having the note added the “Procedure is NA at night” because of greater attention to obstacles penetrating the 20 to 1 visual segment OCS. More and more instances of this situation are affecting GA pilots at airports they utilize. There is a common misunderstanding by controllers and pilots when night begins and ends. FAR 1.1 General Definitions states the following:

Night means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time.

Unfortunately, some controllers will not provide a clearance for an approach when it is close to sunset. Sunset precedes the beginning of night by approximately 30 minutes in most of the CONUS. This can be very disruptive to pilots who are arriving at their destination or home base near sunset but while an approach is still permitted if the controller refuses providing a clearance for the approach.

Section 4-8-1 (a) lists the following note 2.

Approach clearances are issued based on known traffic. The receipt of an approach clearance does not relieve the pilot of his/her responsibility to comply with applicable Parts of Title 14 of the Code of Federal Regulations and the notations on instrument approach charts which levy on the pilot the responsibility to comply with or act on an instruction; for example, “Straight-in minima not authorized at night,” “Procedure not authorized when glideslope/glidepath not used,” “Use of procedure limited to aircraft authorized to use airport,” or “Procedure not authorized at night.”

This implies that it is the pilot responsibility to comply with the charted approach procedure and its notes and I question the authority of the controller to not issue the approach clearance. In one anecdote, a pilot was not granted an approach because the time of sunset was not converted to local time because of a time zone difference between the controller location and the airport. The pilot protested that it was still daylight but the controller did not relent stating that he could not adjust the time to local time at the airport.

SUGGESTED ATPAC ACTION: Provide education to controllers on the FAA definition of night. Controllers may remind or advise the pilot that a procedure is NA at night. Controllers should not withhold issuing an approach clearance for an approach procedure as compliance with the night restriction is a pilot responsibility as stated in 7110.65V 4-8-1(a) Note 2.

2.21 Discussion of this proposed AOC centered on whether the controller should be responsible to deny an approach clearance or whether the pilot was responsible to know that the procedure could not be flown at night and should not request the approach after civil twilight. The issue of possible controller

liability in the event of an accident was also discussed.

2.22 In the case cited in the proposed AOC, it appeared that Detroit TRACON has a policy that conflicts with the rules. It was agreed that John Collins and Melissa McCaffrey, AOPA, would collect more data from the pilot's perspective to determine if this was an isolated incident or more widespread.

2.23 Action on this proposed AOC will be considered at ATPAC 149 based on the outcome of a further data collection.

3 Briefings

Aeronautical Mobile Airport Communications System (AeroMACS)

3.1 At the request of NBAA, information on the Aeronautical Mobile Airport Communications System (AeroMACS) was provided by Brent Phillips, FAA/ANG-B2 (see **Attachment J**). AeroMACS is an application of Wi-Max technology which was discussed during the International Civil Aviation Organization (ICAO) Eleventh Air Navigation Conference. The intent of this program is to develop international standards for airport mobile surface (i.e., wheels in contact) wireless communications networks that include fixed assets. The program is focusing on applications that Data Comm will not be able to support.

3.2 Airport surface surveillance capability (ASSC) is the first application. A test bed has been established between the NASA Glenn Research Center and Cleveland-Hopkins International Airport (CLE) using off-the-shelf equipment. The primary goal of this activity was to demonstrate that a two-way data link service could be reliably delivered over the AeroMACS Test Bed providing weather messages emulating VOLMET and D-SIGMET messages.

3.3 RTCA Special Committee 223 was chartered to develop the profile and the Minimum Operational Performance Specifications (MOPS) for AeroMACS. They support the FAA objective to utilize 5091 MHz to 5150 MHz spectrum allocated for air traffic automation.

3.4 In addition, the ICAO Aeronautical Communication Panel (ACP) approved the Working Group - Surface (WG-S) to develop AeroMACS. The goal is to complete international Standards and Recommended Practices (SARPs) in 2014 followed by a technical manual. Full ICAO approval and incorporation into Annex 10 is expected in 2016. In addition to the FAA and Eurocontrol, the air navigation service providers from Germany and Japan are actively involved.

Research/thinking underway about changing the definition and procedures for use of Class B airspace reference satellite airport traffic mixing in better

3.5 NBAA expressed the concern that Class B airspace was designed decades ago based on performance characteristics of aircraft utilizing the primary and satellite airports at that time. This model carries over to today in spite of the fact that high performance aircraft now routinely operate at both the primary Class B and the satellite airports under the floor and near the boundaries of the Class B airspace serving the primary airport. For the most part high performance aircraft operating to/from satellite airports are pushed/held down under the Class B until (often) dozen of miles clear of the Class B boundary resulting in (1) inefficiencies for those aircraft operations and (2) safety concerns below the Class B floor with a much more complicated mix of high performance and low performance aircraft in compressed airspace. The FAA was asked to consider how to change this paradigm in order to use current and developing controller decision support tools to allow for high performance aircraft to operate in the Class B airspace to/from satellite airports along with traffic to/from the primary airport.

3.6 The solution to this problem will be an evolutionary process with automation and technology, but also calling for a different mindset for handling the traffic. In addition to airspace issues, crew rest and dispatcher operations are also concerns from the airline perspective.

3.7 Heather Hemdal and Gary Norek will discuss this offline and provide further information at the next meeting.

Discontinuation of World Aeronautical Charts (WAC)

3.8 Guy Copeland, FAA AeroNav Products briefed the meeting on the efforts underway by his office to analyze the demand for products, consider the obsolescence of products due to technological advances and note any duplication of effort (see **Attachment Q**). He noted the availability of Sectional Charts and Terminal Area Charts. Several producers of the Electronic Flight Bags have stopped using the WACs. The National Geospatial-Intelligence Agency (NGA) stopped ordering the the WAC product series in 2012, significantly reducing the sale of this product.

3.9 A recommendation was made to discontinue the production of WACs except where required by international agreement and for US territories that do not have alternative coverage. A public comment period will be published in the Federal Register and additional internal FAA assessments continue.

3.10 Further updates will be provided to ATPAC when they are available.

4 Status Updates to Existing AOCs

AOC 141-1 Runway Guard Lights (RGL)

4.1 During the meeting, questions were raised regarding the background of AOC 141-1. (see **Attachment K** for original AOC and summary of ATPAC meeting discussions). Although ATPAC 147 was informed that the change would be published in 7110.65V on April 3, 2014, it is still being worked. The status was therefore moved to existing AOCs and a further update will be provided to ATPAC 149.

AOC 145-2 IFR Services in Class G Airspace

4.2 A question was raised as to the original recommendation in AOC 145-02. The AOC as proposed recommended a change to the AIM, paragraph 4-4-11, IFR Separation Standards. (see **Attachment L**) ATPAC 146 recommended that AIM, 4-4-11, IFR Separation Standards, be changed as follows (added wording is highlighted in gray):

b. Separation will be provided between all aircraft operating on IFR flight plans except during that part of the flight (outside of Class B or TRSA) being conducted on a VFR-on-top/VFR conditions clearance. In addition, pilots are reminded that ATC does not provide IFR separation service in Class G airspace and the filing of a random RNAV routing that transits Class G airspace is considered pilot acknowledgment that no IFR separation service will be provided in transited Class G airspace. Under these circumstances, ATC may issue traffic advisories, but it is the sole responsibility of the pilot to be vigilant so as to see and avoid other aircraft.

4.3 The DCP for this change to the AIM was non-concurred by AJV-8 and the FAA Office of the Chief Counsel (AGC) and the topic was identified as Corrective Action Report (CAR)-2013-016 and assigned to the ATC Handbook Rewrite Group in fall 2013. The ATC Handbook Rewrite Group has developed and forwarded a draft DCP with a definition of CLASS G AIRSPACE for the Pilot/Controller

Glossary to AJV-8 for review and submission to stakeholders in the field for comments. Heather Hemdal will provide an update to ATPAC 149.

4.4 Bruce McGray noted that concerns have been raised regarding the Canadian language. Bruce will provide specific details to Jonathan Gray.

AGS Interpretation of Control in Class G Airspace

4.5 The ATPAC response to AGC was not accepted by their office, and more work is needed to help them understand the overriding IFR issues that must be applied to this matter. (see **Attachment M**)

4.6 Circling is part of an IFR approach whereas a VFR traffic pattern is flown using visual flight rules. Both rely on visual cues for maneuvering the aircraft for landing but they are flown for different reasons at different altitudes and have different requirements both to fly to touchdown and depart from them when necessary. VFR patterns have a specified direction in which to turn. IFR circling approaches must turn so as to remain within the protected circling airspace regardless of the VFR pattern. The legal interpretation is in error and needs to be changed to account for IFR requirements.

5 Deferred AOCs

5.1 **AOC 116-3 - Glide Slope Critical Area Advisory** - Changes to FAA Order 7110.65 (para 3-7-5b) and AIM (1-1-9k2(b)(2)) were published April 3, 2014. AOC CLOSED.

5.2 **AOC 143-1 Use of 'DESCEND VIA [STAR] and MAINTAIN [altitude]' phraseology in NAV CANADA Bulletin** - Published in 7110.65V on April 3, 2014. AOC CLOSED.

5.3 **AOC 146-4 Availability of IFR departure clearance relative to ground based NAVAID proximity** - Published in 7110.65V on April 3, 2014. AOC CLOSED.

6 Recurring Agenda Items

Similar Sounding Call Signs

6.1 Jonathan Gray and Dr. Pradip Som, AJI-15 briefed the meeting on the work underway to address problems creating by similar sounding call signs. (see **Attachment N**) This issue was identified as one of ATO's "Top 5" for 2013. Similar call signs result in increased opportunity for confusion and incorrect aircraft receiving/reading back clearance. A number of FAA groups are working with Eurocontrol and airline safety committees to find resolutions to this problem.

6.2 In 2012, five high risk events involved this issue, with 548 Air Traffic Safety Action Program (ATSAP) reports filed with similar call signs as a causal factor. ATSAP data has been collected for Sept 2008 – Oct 2012.

6.3 Eurocontrol has been working on call sign similarity for past four years. They have determined that the best defense against call sign confusion consists of eliminating, or reducing the chance of having two (or more) aircraft with similar call signs on the same radio frequency in the same time window.

6.4 As a result of the data collection and analysis, the following rules describe what to AVOID when

generating air carrier call signs:

Rule 1: Identical Final Two Alphanumerics

Rule 2: Identical First Two Digits (Root)

Rule 3: Same First and Last Alphanumerics

Rule 4: Same Relative Positions (Blocks)

Rule 5: Identical Flight Numbers – Different Air Carriers

6.5 The following are other best practices to avoid similar call sign confusions:

- a. Train pilots to avoid shortening air carrier names (Ex: Compass vs. Compass Rose)
- b. Avoid call signs which include taxiway characters
- c. Avoid call signs having Flight Level values (see ICAO Doc 8585)
- d. Avoid call signs having any runway values

6.6 Jonathan Gray will continue to update the ATPAC on the progress of this work

Low Visibility Operations (LVO), and Surface Movement Guidance and Control System (SMGCS)

6.7 Bruce McGray presented an update on the work underway in support of LVO and SMGCS. (see **Attachment O**) The current focus is to determine how to set up unique protected low visibility taxi routes under FAA Order 8000.94 guidance and Advisory Circular (AC) 120-57A. The initial kick-off at SEA was held in April 2014. Further information will be presented to the next ATPAC meeting.

Wake Turbulence Update

6.8 Jeffrey Tittsworth, AJV-822, provided an update to the meeting. The Wake Turbulence Research Program's focus is safely improving capacity in the National Airspace System (NAS). The program is built around three solutions sets.

6.9 The first set is data driven procedural changes, with some of the changes requiring a controller display aid. Measured data are used to build the safety cases that support these changes to air traffic operational procedures, without the need of new meteorological sensors or other technology based solutions.

6.10 The second set is procedural changes supported by real time data measuring specific meteorological conditions and simple technology solutions supporting those data measurements.

6.11 The third set includes the most complex solutions requiring significant meteorological or technology inputs to achieve the capacity gains.

- a. **1st Solution Set - JO7110.308** - The Wake Turbulence Research Program along with the Terminal Services Unit developed and received regulatory approval of the rule change, to allow simultaneous dependent instrument approaches, staggered 1.5NM, to

runways separated by less than 2500 feet. There are currently seven airports approved for the procedure: Boston (BOS), Cleveland (CLE), Newark (EWR), Memphis (MEM), Philadelphia (PHL), St Louis (STL), and Seattle (SEA). San Francisco (SFO) and a change to EWR are the most recent additions established in the Change 3 addendum to JO7110.308 Appendix F. SFO implemented the procedures on or about October 1, 2013 and the called arrival rates have changed from 30 to 33 aircraft per hour. Achieved arrival rates have been observed up to 35 per hour as the facility is gaining experience with the procedure. The Wake Program has completed analysis for use of the procedure in Phoenix and Las Vegas, and the program is currently in discussion with the facilities regarding the operational need for completing the Change 4 addendum to the 7110.308 Appendix F to approve Phoenix and Las Vegas for use of the procedure. Additionally, the wake program is working with stakeholders for the addition of an RNAV approach to Boston runway 4L which, in conjunction with an update to the 7110.308 safety case and FAA Order, will enable use of the 7110.308 procedure. The program has also begun work on a request from SFO/NCT for a review of 7110.308 for use on SFO runway 19's.

- b. **2nd Solution Set - Wake Turbulence Mitigation for Departures (WTMD)** is a Closely Spaced Parallel Runway (CSPR) project incorporating existing meteorological data and simple technology to achieve additional departure capacity at ten constrained airports. A WTMD Operational Demonstration System has been implemented at SFO in March 2013, Houston (IAH) in May 2013, and MEM in Dec 2013. Operational feedback from the three facilities has been positive and early benefits assessments show promise. SFO has seen some valuable operational impacts, although the ATC staff would like to see the procedure available more often. IAH experience has been affected by runway closures that have had an impact on its use when it has been otherwise operationally available, but for these operational staff with WTMD experience, there has been significant delay savings during times with large queues, as well as a similar desire for availability improvement that has been seen in SFO. With only a few months of WTMD operations in MEM, the results are still quite preliminary, but a need for greater availability is expected as well. To address this consistent feedback, the WTMD team is working to enhance WTMD on two fronts. The first front is the analysis of recent wind data from SFO and MEM that may provide evidence that will permit a slight relaxation of the wind criteria and enhance operational availability. The second front is to make more fundamental changes to the procedures, the controller decision support tool and the wind forecast algorithm to support paired departures. This change, if achievable, is 2-3 or more years away. After one year of data collection at all three sites, the WTMD system benefits will be assessed and the FAA investment analysis decision will be made whether to continue fielding the WTMD capability to the remaining 7 potential WTMD sites. Enhancements will be applied as P3I for the solution.
- c. **2nd Solution Set - Wake Turbulence Mitigation for Arrivals (WTMA)** - The Wake Turbulence Research Program is collecting data and developing the concept definition for WTMA. This effort expands on the procedures-only solutions to include more types of aircraft and increases the number of airports that can realize increased arrival capacity in less than visual conditions. WTMA is made up of two mitigation solutions, WTMA Procedure (WTMA-P) and WTMA System (WTMA-S). WTMA-P expands upon the 7110.308 procedure by allowing Heavy and B757 aircraft to participate in reduced wake separation procedures to CSPRs spaced less than 2500'. The safety analysis for this procedure is nearing completion, and key sites are being determined for implementation starting in 2015. The WTMA-S project is a wind-dependent wake mitigation solution for arrivals, which expands on the technology and meteorological data used by WTMD

to address the longer planning horizons and larger airspace with reduced separation that is necessary for the arrival solution. Automated Terminal Proximity Alert (ATPA) is a capability that WTMA-P and WTMA-S will likely use as the decision support tool to aid controllers in their situational awareness needs for dependent instrument approaches to CSPR. The ATPA single runway application is currently running at select US sites. The dependent solution version, ATPA Phase II requirements are nearing completion. Phase II will be useful for WTMA-P, but not a requirement. ATPA Phase III is envisioned as a requirement for WTMA-S.

d. **3rd Solution Set - The Wake Turbulence Research Program is no longer supporting Crosswind-Reduced Separation for Departure Operations (CREDOS) but is pursuing Wake Turbulence Mitigation for Single Runway (WTMSR).**

WTMSR is currently in the research phase where potential system and procedural concepts are being explored and defined. It will likely incorporate and build off of the technology developed for the wake turbulence mitigations used for CSPRs.

6.12 The Wake Re-categorization project (**RECAT**) is an international effort undertaking a re-categorization of current wake categories. This is a multi-phased effort which is seeking capacity gains in each phase and has application in all three solution sets. After more than seven years of joint effort with Eurocontrol, the FAA presented the joint proposal for a static six category system called RECAT Phase I to ICAO in December 2010 for review by the ICAO Wake Turbulence Study Group (WTSG). The effort to harmonize based on this recommendation was focused on optimizing on a compromise fleet mix demand based on traffic in the US and Europe. Some member States of Eurocontrol believed the joint recommendation did not optimize sufficiently for their ANSP-specific fleet mix. In turn, Eurocontrol has chosen to work with few European ANSPs to develop a regional, Eurocentric modification of the joint proposal in hopes of providing improved benefit for some of the member states.

6.13 The US has chosen to implement the joint recommendation in an effort to promote harmonization and to demonstrate safe implementation. MEM implemented initial operational capability (IOC) with RECAT on Nov 1, 2012. Operational experience with the new standards has resulted in the removal of several operational constraints. Departure metering was eliminated by FedEx, arrival flow control programs have been eliminated for the most part, and additional arrival gates have been implemented such that En Route can feed more traffic to MEM. Called arrival and departure rates have been raised from 77 to 99 per hour. FedEx is reporting a monthly savings of \$1.8M per month due to RECAT. SDF went operational in September 2013. UPS is reporting a nightly savings of 53,000 lbs of fuel on arrivals. Cincinnati (CVG) is the most recent RECAT site, having gone operational on March 11, 2014. The implementation of RECAT at CVG has also been smooth, though it is too early for any post-implementation analysis.

6.14 The RECAT Order is awaiting signature and defines the process for additional implementation (ATC training, RECAT software changes enabled for the TRACON automation, and electronic flight strips (or equivalent functionality to present the wake category on the flight strip for departures). The government slim down affected implementations in FY13 and into FY14 but plans are underway to determine future sites. Atlanta (A80) and Northern California TRACONs (NCT), are planned for 2014. Honolulu (HNL), New York (N90), Southern California (SCT), Potomac (PCT), Indianapolis (IND), Houston (I90) TRACONs, and others are planned for the following years.

6.15 The FAA is trying again to pursue an international solution, RECAT Phase II, based on harmonization of pairwise wake separation standards. FAA is working again with Eurocontrol. One risk to this effort is a desire by some Eurocontrol member states for a regional RECAT solution. Such a regional solution will likely eliminate some ICAO member States from supporting an international

harmonization effort. While other risks also exist, the fallback position by the FAA is to implement the RECAT II standards in the US if international support is again affected. RECAT II will expand upon the benefits of RECAT I by allowing for wake separation matrices that are customized to the TRACON fleet mix. Implementation will transition seamlessly from RECAT I to RECAT II in FY16/17.

6.16 **Aircraft Standards** - During CY2010, the FAA approved and implemented a revision to its current wake separation standards that places all Boeing 757 aircraft in the same wake separation category. Work is continuing by international groups (including the manufacturer, the FAA Air Traffic Operations and Flight Standards, the European Aviation Safety Agency (EASA) and Eurocontrol) in reviewing the wake separations associated with the Airbus 380 and recently concluded an assessment of the new Boeing 747-8 series aircraft through flight tests conducted in a manner similar to that used for the A380. During 1st quarter CY2011, the Wake Program, working with Aviation Safety (AVS), Boeing, and ATO-Terminal developed a Safety Risk Management Document (SRMD) for the introduction of the new B787 series 8 and 9 aircraft into commercial service and received EASA concurrence on the proposed wake turbulence separations. As a result of those efforts, the assessments for both the B787 and B748 aircraft were completed prior to EIS and both been categorized as Heavy aircraft. The separation standards were placed into the 7110.65 for use by Air Traffic. In FY2013, the Wake Program completed initial analysis in preparation for the introduction of the Airbus A350 into commercial service.

Time Based Flow Management (TBFM) Procedures

6.17 An update on TBFM was provided by Brian Holguin, AJR-1. (see **Attachment P**)

6.18 One of the current issues is the status of the TBFM De-Icing Procedure. FAA Order 7210.3, paragraph 10-1-12 currently states that aircraft operators at airports with a Local Airport De-Icing Plan (LADP) are responsible for complying with issued Expect Departure Clearance Time (EDCT) times. The current DRAFT DCP language proposes that:

- a. Aircraft operators at LADP airports would be responsible for complying with Expect Departure Clearance Times (EDCTs) and/or Time Based Flow Management (TBFM) scheduled departure release times and will not be exempted from compliance with these times.
- b. In cases where an EDCT program and TBFM scheduling are in affect for the same airport, the TBFM scheduled departure release time would be given priority.

6.19 AJT-2 non-concurred with the DCP for the following reasons: The nature of TBFM release times does not facilitate getting a time before the aircraft enters deicing. Flight progress strips are printed 30 minutes before the flight is scheduled to depart with an EDCT. Airline operators use that EDCT to schedule the deicing of that aircraft. TBFM release times cannot be issued that early due to the overhead stream not being established. During a snow event, an aircraft should never be held on the ground after deicing to meet a release time.

6.20 The TBFM team will continue to seek concurrence to modify language that reflects operational safety concerns when De-Icing, and the requirement to achieve updated TBFM departure times.

6.21 The presentation also addressed ATSAP CAR 2013-007 concerning optimized profile descents (OPDs), national TBFM training, Ground Interval Management – Spacing (GIM-S) and the responsibilities of the National TBFM Operations Team.

7 Location and Dates for Future Meetings

7.1 Discussion was held on dates for **ATPAC #149**, which will be convened in conjunction with the Air Traffic Control Association (ATCA) Annual Conference at the **Gaylord Convention Center in Washington, DC**. Dates agreed were **Tuesday, September 30 – Wednesday, October 1, 2014**.

7.2 Proposed locations/dates for **ATPAC #150** are:

- a. Tue, Jan 27 - Wed, Jan 28, 2015 in Washington, DC
- b. Tue, Feb 24 - Wed, Feb 25, 2015 in Washington, DC

7.3 A decision on the ATPAC #150 meeting location and dates will be made at ATPAC #149.

8 Adjournment

8.1 There being no further business, the meeting was adjourned on Wednesday, May 7 at 1:30pm.

Robert's Rules of Order

Presented to: ATPAC 148

By: Lynette Jamison, Chair

Date: May 6, 2014



Federal Aviation
Administration



What is Robert's Rules of Order?

- **Guide preferred by most professional parliamentarians for being fair and complete**
- **Protects the rights of the minority and treats all sides equally**
- **Easily obtained by officers and members**
- **Basics are familiar to many people**



Basic Principles

- **Only one person at a time may be considered, and only one person may have the floor at any one time**
- **Remain quiet while others are speaking**
- **No person can speak until recognized by the Chair**
- **Personal remarks are always out of order**
- **Silence gives consent**
- **The Chair should always remain impartial**



Procedures for Handling a Motion

- Member obtains the floor by being recognized by the Chair
- Member makes a main motion by stating “*I move that...*”
- A motion must be seconded by another member before it can be considered
- After the motion is seconded, it is re-stated by the Chair



General Rules of Debate

- **All discussion must be relevant to the immediately pending question**
- **No member can speak more than once to each motion**
- **Members can speak up to 5 minutes**
- **All remarks must be addressed to the Chair**
 - No cross debate is permitted
 - No personal attacks



Voting on the Motion

- **The Chair will put the Question to the membership**
- **The vote will be taken**
 - The Chair may ask if there is any objection, and if there is none, the motion carries
 - If there is objection, a formal vote will be taken



Other Motions Related to Voting

- **Motion to Table**
 - Used in the attempt to "kill" a motion.
- **Motion to Postpone Indefinitely**
 - Allows opponents of motion to test their strength without an actual vote being taken. Debate is once again open on the main motion.



Discussion?



ROBERTS RULES CHEAT SHEET

To:	You say:	Interrupt Speaker	Second Needed	Debatable	Amendable	Vote Needed
Adjourn	"I move that we adjourn"	No	Yes	No	No	Majority
Recess	"I move that we recess until..."	No	Yes	No	Yes	Majority
Complain about noise, room temp., etc.	"Point of privilege"	Yes	No	No	No	Chair Decides
Suspend further consideration of something	"I move that we table it"	No	Yes	No	No	Majority
End debate	"I move the previous question"	No	Yes	No	No	2/3
Postpone consideration of something	"I move we postpone this matter until..."	No	Yes	Yes	Yes	Majority
Amend a motion	"I move that this motion be amended by..."	No	Yes	Yes	Yes	Majority
Introduce business (a primary motion)	"I move that..."	No	Yes	Yes	Yes	Majority

The above listed motions and points are listed in established order of precedence. When any one of them is pending, you may not introduce another that is listed below, but you may introduce another that is listed above it.

To:	You say:	Interrupt Speaker	Second Needed	Debatable	Amendable	Vote Needed
Object to procedure or personal affront	"Point of order"	Yes	No	No	No	Chair decides
Request information	"Point of information"	Yes	No	No	No	None
Ask for vote by actual count to verify voice vote	"I call for a division of the house"	Must be done before new motion	No	No	No	None unless someone objects
Object to considering some undiplomatic or improper matter	"I object to consideration of this question"	Yes	No	No	No	2/3
Take up matter previously tabled	"I move we take from the table..."	Yes	Yes	No	No	Majority
Reconsider something already disposed of	"I move we now (or later) reconsider our action relative to..."	Yes	Yes	Only if original motion was debatable	No	Majority
Consider something out of its scheduled order	"I move we suspend the rules and consider..."	No	Yes	No	No	2/3
Vote on a ruling by the Chair	"I appeal the Chair's decision"	Yes	Yes	Yes	No	Majority

The motions, points and proposals listed above have no established order of preference; any of them may be introduced at any time except when meeting is considering one of the top three matters listed from the first chart (Motion to Adjourn, Recess or Point of Privilege).

PROCEDURE FOR HANDLING A MAIN MOTION

NOTE: Nothing goes to discussion without a motion being on the floor.

Obtaining and assigning the floor

A member raises hand when no one else has the floor

- The chair recognizes the member by name

How the Motion is Brought Before the Assembly

- The member makes the motion: *I move that (or "to") ...* and resumes his seat.
- Another member seconds the motion: *I second the motion* or *I second it* or *second*.
- The chair states the motion: *It is moved and seconded that ... Are you ready for the question?*

Consideration of the Motion

1. Members can debate the motion.
2. Before speaking in debate, members obtain the floor.
3. The maker of the motion has first right to the floor if he claims it properly
4. Debate must be confined to the merits of the motion.
5. Debate can be closed only by order of the assembly (2/3 vote) or by the chair if no one seeks the floor for further debate.

The chair puts the motion to a vote

1. The chair asks: *Are you ready for the question?* If no one rises to claim the floor, the chair proceeds to take the vote.
2. The chair says: *The question is on the adoption of the motion that ... As many as are in favor, say 'Aye'.* (Pause for response.) *Those opposed, say 'Nay'.* (Pause for response.) *Those abstained please say 'Aye'.*

The chair announces the result of the vote.

1. *The ayes have it, the motion carries, and ...* (indicating the effect of the vote) or
2. *The nays have it and the motion fails*

WHEN DEBATING YOUR MOTIONS

1. Listen to the other side
2. Focus on issues, not personalities
3. Avoid questioning motives
4. Be polite

HOW TO ACCOMPLISH WHAT YOU WANT TO DO IN MEETINGS

MAIN MOTION

You want to propose a new idea or action for the group.

- After recognition, make a main motion.
- Member: "Madame Chairman, I move that _____."

AMENDING A MOTION

You want to change some of the wording that is being discussed.

- After recognition, "Madame Chairman, I move that the motion be amended by adding the following words _____."
- After recognition, "Madame Chairman, I move that the motion be amended by striking out the following words _____."
- After recognition, "Madame Chairman, I move that the motion be amended by striking out the following words, _____, and adding in their place the following words _____."

REFER TO A COMMITTEE

You feel that an idea or proposal being discussed needs more study and investigation.

- After recognition, "Madame Chairman, I move that the question be referred to a committee made up of members Smith, Jones and Brown."

POSTPONE DEFINITELY

You want the membership to have more time to consider the question under discussion and you want to postpone it to a definite time or day, and have it come up for further consideration.

- After recognition, "Madame Chairman, I move to postpone the question until _____."

PREVIOUS QUESTION

You think discussion has gone on for too long and you want to stop discussion and vote.

- After recognition, "Madam President, I move the previous question."

LIMIT DEBATE

You think discussion is getting long, but you want to give a reasonable length of time for consideration of the question.

- After recognition, "Madam President, I move to limit discussion to two minutes per speaker."

POSTPONE INDEFINITELY

You want to kill a motion that is being discussed.

- After recognition, "Madam Moderator, I move to postpone the question indefinitely."

POSTPONE INDEFINITELY

You are against a motion just proposed and want to learn who is for and who is against the motion.

- After recognition, "Madame President, I move to postpone the motion indefinitely."

RECESS

You want to take a break for a while.

- After recognition, "Madame Moderator, I move to recess for ten minutes."

ADJOURNMENT

You want the meeting to end.

- After recognition, "Madame Chairman, I move to adjourn."

PERMISSION TO WITHDRAW A MOTION

You have made a motion and after discussion, are sorry you made it.

- After recognition, "Madam President, I ask permission to withdraw my motion."

CALL FOR ORDERS OF THE DAY

At the beginning of the meeting, the agenda was adopted. The chairman is not following the order of the approved agenda.

- Without recognition, "Call for orders of the day."

SUSPENDING THE RULES

The agenda has been approved and as the meeting progressed, it became obvious that an item you are interested in will not come up before adjournment.

- After recognition, "Madam Chairman, I move to suspend the rules and move item 5 to position 2."

POINT OF PERSONAL PRIVILEGE

The noise outside the meeting has become so great that you are having trouble hearing.

- Without recognition, "Point of personal privilege."
- Chairman: "State your point."
- Member: "There is too much noise, I can't hear."

COMMITTEE OF THE WHOLE

You are going to propose a question that is likely to be controversial and you feel that some of the members will try to kill it by various maneuvers. Also you want to keep out visitors and the press.

- After recognition, "Madame Chairman, I move that we go into a committee of the whole."

POINT OF ORDER

It is obvious that the meeting is not following proper rules.

- Without recognition, "I rise to a point of order," or "Point of order."

POINT OF INFORMATION

You are wondering about some of the facts under discussion, such as the balance in the treasury when expenditures are being discussed.

- Without recognition, "Point of information."

POINT OF PARLIAMENTARY INQUIRY

You are confused about some of the parliamentary rules.

- Without recognition, "Point of parliamentary inquiry."

APPEAL FROM THE DECISION OF THE CHAIR

Without recognition, "I appeal from the decision of the chair."

Rule Classification and Requirements

Class of Rule	Requirements to Adopt	Requirements to Suspend
Charter	Adopted by majority vote or as proved by law or governing authority	Cannot be suspended
Bylaws	Adopted by membership	Cannot be suspended
Special Rules of Order	Previous notice & 2/3 vote, or a majority of entire membership	2/3 Vote
Standing Rules	Majority vote	Can be suspended for session by majority vote during a meeting
Modified Roberts Rules of Order	Adopted in bylaws	2/3 vote

Simplified Roberts Rules of Order

• Main ideas:

- Everyone has the right to speak once if they wish, before anyone may speak a second time.
- Everyone has the right to know what is going on at all times.
- Only urgent matters may interrupt a speaker.
- The [members] discuss only one thing at a time.
- Provide order, fairness and decorum
- ☐ Facilitate the transaction of business and expedite meetings
- Full and free discussion of every motion is a basic right
- Only one question at a time may be considered, and only one person may have the floor at any one time
- No person can speak until recognized by the chair

• How to do things:

1. You want to bring up a new idea before the group.

After recognition by the [president], present your motion. A second is required for the motion to go to the floor for debate, or consideration.

2. You want a motion just introduced by another person to be killed.

Without recognition from the [president] simply state "I object to consideration." This must be done before any debate. This motion requires no second, is not debatable and requires a 2/3 vote.

3. You want to change some of the wording in a motion under debate.

After recognition by the [president], move to amend by

1. adding words,
2. striking words or
3. striking and inserting words.

4. You like the idea of a motion under debate, but you need to reword it beyond simple word changes.

Move to substitute your motion for the original motion. If it is seconded, debate will continue on both motions and eventually the body will vote on which motion they prefer.

5. You want more study and/or investigation given to the idea under debate.

Move to refer to a committee. Try to be specific as to the charge to the committee.

6. You are tired of the current debate.

Move to limit debate to a set period of time or to a set number of speakers. Requires a 2/3 vote.

7. You have heard enough debate.

Move to close the debate. Requires a 2/3 vote.

Or move to previous question. This cuts off debate and brings the assembly to a vote on the pending question only. Requires a 2/3 vote.

8. You want to postpone a motion until some later time.

Move to table the motion. The motion may be taken from the table after 1 item of business has been conducted. If the motion is not taken from the table by the end of the next meeting, it is dead. To kill a motion at the time it is tabled requires a 2/3 vote. A majority is required to table a motion without killing it.

9. You want to take a short break.

Move to recess for a set period of time.

10. You want to end the meeting.

Move to adjourn.

11. You are unsure that the [president] has announced the results of a vote correctly.

Without being recognized, call for a "division of the house." At this point a standing vote will be taken.

12. You are confused about a procedure being used and want clarification.

Without recognition, call for "Point of Information" or "Point of Parliamentary Inquiry." The [president] will ask you to state your question and will attempt to clarify the situation.

General Rules of Debate

- ☐ No members may speak until recognized by the chair
- ☐ All discussion must be relevant to the immediately pending question
- ☐ No member can speak more than once to each motion
- ☐ No member can speak more than three minutes
- ☐ All remarks must be addressed to the chair – no cross debate is permitted
- ☐ It is not permissible to speak against one's own motion (but one can vote against one's own motion)
- ☐ Debate must address issues not personalities – no one is permitted to make personal attacks or question the motives of other speakers

Vectors for Victor?

Now Morphed Into 2 Points of Focus Terrain Clearance And Class G/IFR Issues

Presented to: ATPAC

By: Bruce McGray

Date: May 6,7, 2014



Federal Aviation
Administration



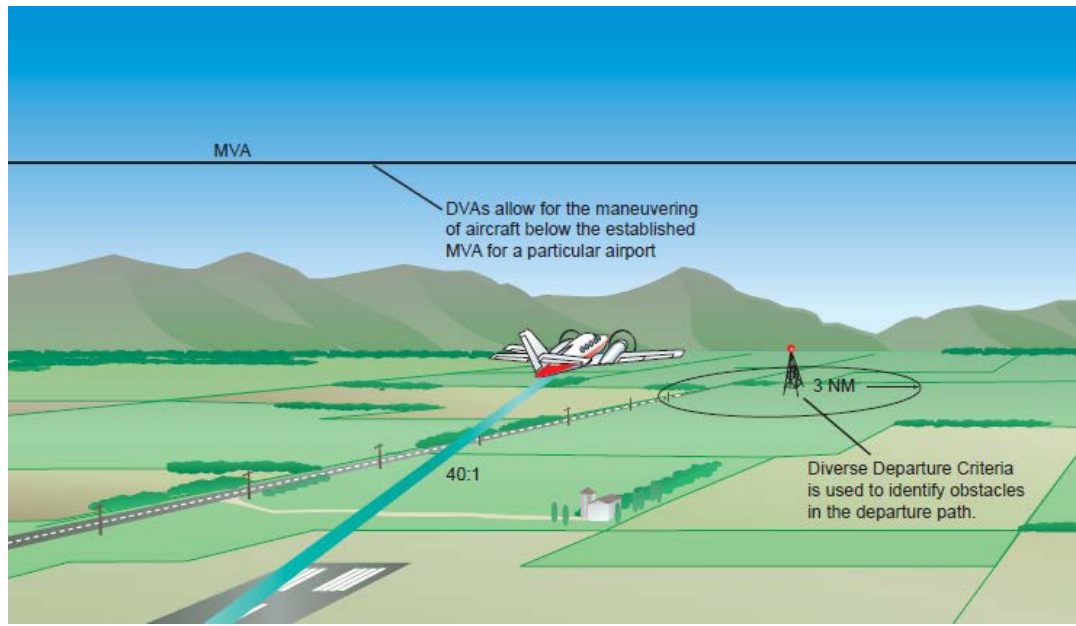
Overview

- **Heading or Vector?**
- **Who's responsible for terrain clearance?**
- **Training for ATC?**
- **Training for pilots?**



Pilot/Controller Glossary 7110.65

VECTOR– A heading issued to an aircraft to provide navigational guidance by radar. [ATC accepts terrain clearance responsibility if IFR]



AIM 4.1.15 Radar Traffic

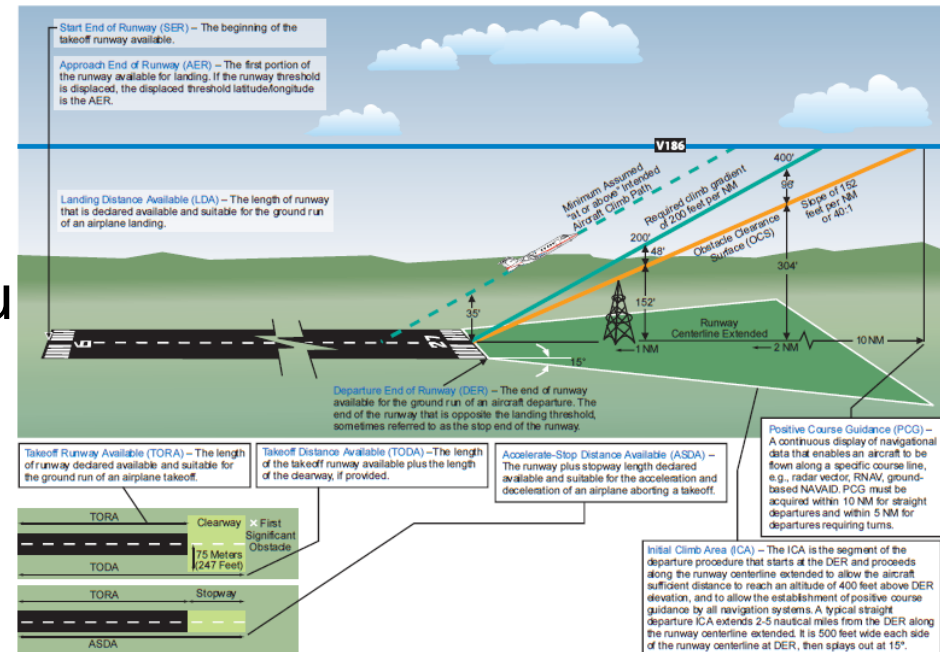
Information *The pilot may upon receipt of traffic information, request a vector (heading) to avoid such traffic. [And is handing off terrain clearance duties to ATC]*



Instrument Procedures Handbook (IPH)

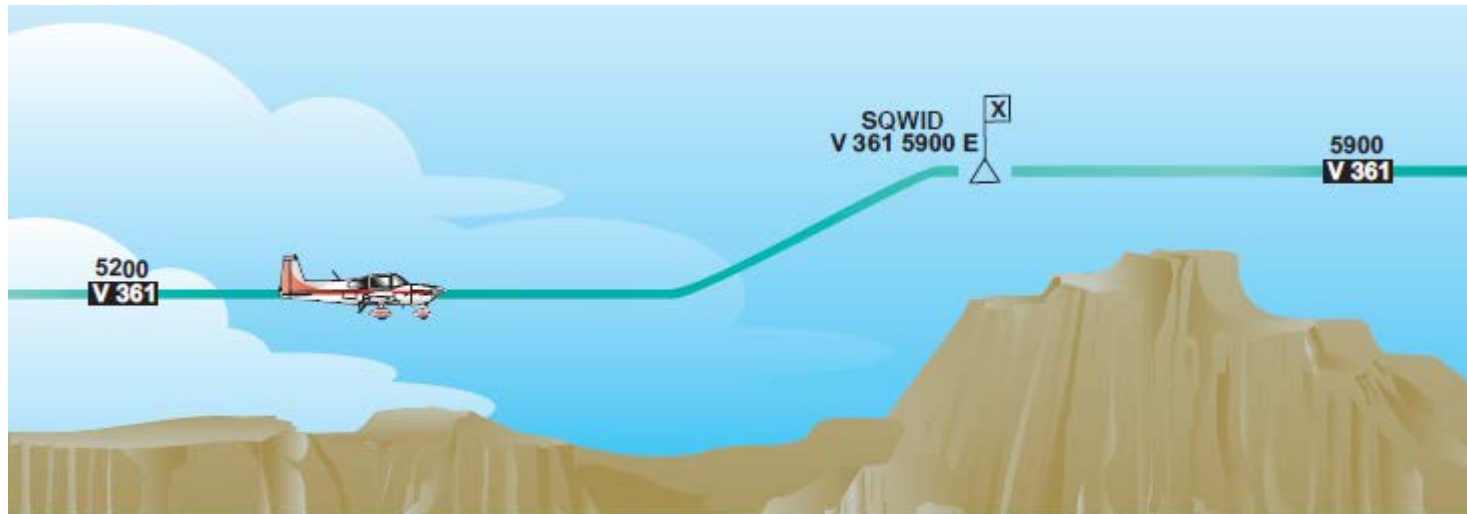
RADAR DEPARTURE

A radar departure is another option for departing an airport on an IFR flight. You might receive a radar departure if the airport does not have an established departure procedure, if you are unable to comply with a departure procedure, or if you request “No SIDs” as a part of your flight plan



IPH Content Continued:

Expect ATC to issue an initial departure **heading** if you are being radar **vectored** after takeoff, however, do not expect to be given a purpose for the specific **vector heading**. Rest assured that the controller knows your flight route and will **vector** you into position.



IPH Continued

By nature of the departure type, once you are issued your clearance, the responsibility for coordination of your flight rests with ATC [while being vectored], including the tower controller and, after handoff, the departure controller who will remain with you until you are released on course and allowed to “resume own navigation.”



What is the Point?

- **The point is that when ATC handles the IFR departure, pilots know the facility has assumed terrain clearance responsibility. “Heading” and “vector” mean the same thing to pilots following those instructions.**
- **One exception– Pilot instructed to climb into controlled airspace to a point where radar contact is made and aircraft cleared IFR.**



What is the Problem?





Say... what's a mountain goat going way up here in a cloud bank?

We're on vectors. We're Okay.



"Say ... what's a mountain goat doing way up here in a cloud bank?"

We're on a "heading" from ATC.
We're Okay.



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4.4.9 VFR/IFR Flights

A pilot departing VFR, either intending to or needing to obtain an IFR clearance en route, must be aware of the position of the aircraft and the relative terrain/obstructions. When accepting a clearance below the MEA/MIA/MVA/OROCA, **pilots are responsible** for their own terrain/obstruction clearance until reaching the MEA/MIA/MVA/OROCA. If pilots are unable to maintain terrain/obstruction clearance, the controller should be advised and pilots should state their intentions.



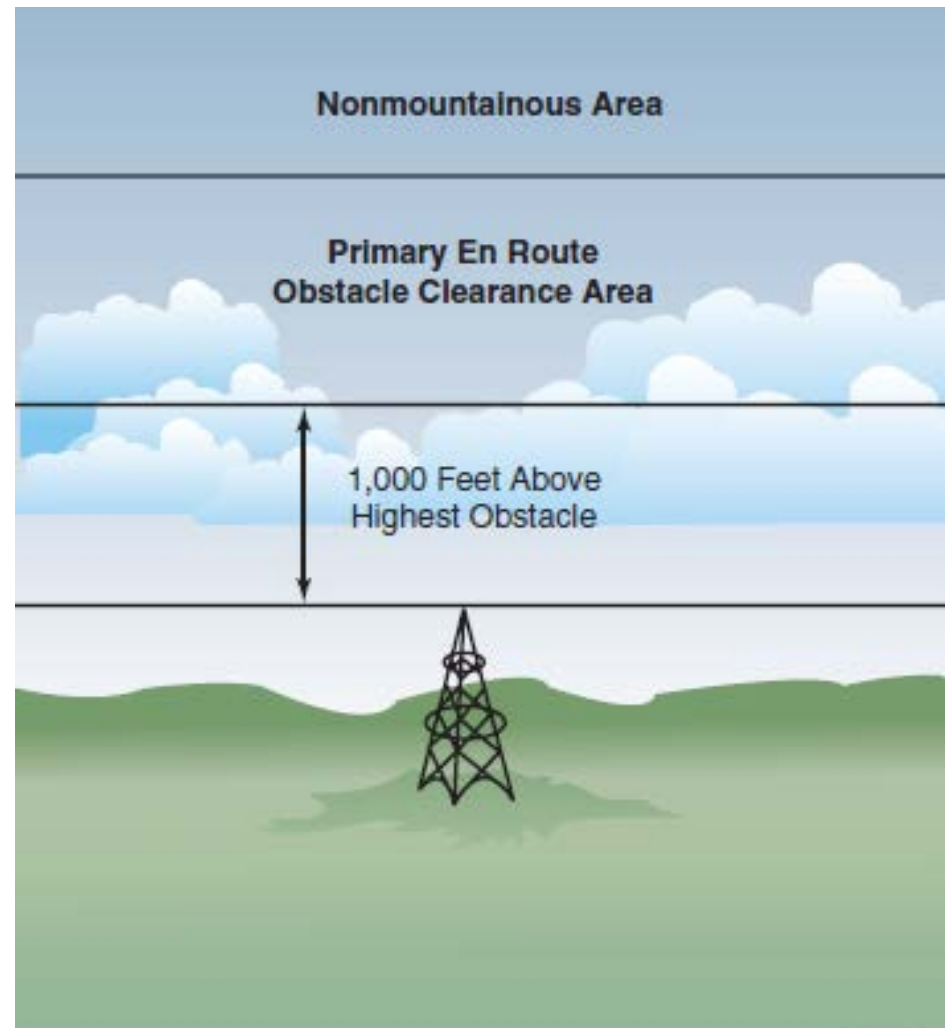
Summary

- **ATC is responsible for terrain clearance**
- **Pilots are responsible for terrain clearance**
- **ATC and Pilots need better training on terrain clearance responsibilities**



From the ATC Handbook Committee

- Takeoff from Towered/Nontowered Class G airport
- Cleared as filed
- Cleared on course
- Radar Contact
- Cleared to cruise
- VFR Pop up
- Clearance Void if
- Cleared through



From the ATC Handbook Committee

- Cleared to VFR
- Cleared as filed with an ODP
- VFR On Top
- Class G airport with a DVA (never happens)
- Controlled into Class G and Back to controlled
- Out of Class G into controlled
- Out of controlled to destination in Class G



More from the Handbook Committee

- Coordinated VFR climb to a point to pick up IFR clearance
- Unique IFR factors in Class G airspace
- IAPs that conclude in Class G
- When and under what conditions/clearances does ATC have terrain clearance responsibility



More from the Handbook Committee

- Under what IFR conditions and clearances does pilot have terrain clearance responsibility
- How to handle GPS/RNAV routes through Class G to controlled airspace
- Clear definitions of all terms 7110.65, AIM/AIP/PCG, IPH



Short Term Stop Gap

- AFS-400 Memo requested by the ATC handbook committee recommending AIM adopt the Canadian Class G airspace statement while the rest is being worked
- AIM Class G Airspace (uncontrolled) Is that portion of airspace that has not been designated as Class A-E
- 7110.65 Chapt 12 Canadian Airspace Class G...Uncontrolled airspace within which ATC has neither the authority nor responsibility for exercising control over air traffic.
- These items will not be pursued as determined today by the ATC Procedures Advisory Committee



OTHER AIP Issues Class G

- U.S. has visibility requirements; other requirements 4.1b); traffic advisories if possible 9.1.4.1.1; 3.7.4.4 Routes; 4.2.2 and 4.2.2b); 37.7.1.3 transponder; Section 3 Class G Airspace; 4.1.1.1 IFR altitudes; small UAS aircraft 5.4;



Other Terrain Clearance Subject Confusion Items

1. Heading from a Towered airport (can include ATC having terrain clearance responsibility)
2. From a non Towered (usually pilot has terrain clearance responsibility)
3. General vector vs heading
4. Heading off the ground VFR or IFR
5. ATC asks if you can accept a hdg you have terrain clearance responsibility



Other Terrain Clearance Subject Confusion Items

6. I have a DP for an airport and the Tower says turn left to heading 360 degrees. They are accepting terrain clearance responsibilities

7. VECTOR– A heading issued to an aircraft to provide navigational guidance by radar. [ATC accepts terrain clearance responsibility if the radar vector is of an IFR flight on IFR clearance]



Last Class G/IFR Problem Issue

1. ATPAC decided to not pursue the Class G airspace issues that came up during the work with handbook committee



Discussion Other Questions?



AIR TRAFFIC PROCEDURES ADVISORY COMMITTEE



AREA OF CONCERN & AGENDA ITEM Submission Form

(Check one)

☐ Area of Concern → Safety Item? ☐ Yes
☒ No

☒ Agenda Item

For Admin Use Only
AOC Number: AOC- 148-02
Date: 04/16/2014
Recommendation
Number: R-_____

SUBJECT: ADS-B NOTAMS and Problem reporting

DISCUSSION: The ADS-B infrastructure is now fully installed in the CONUS and Alaska according to the announcement 4-14-2014. Each ADS-B NOTAM indicating that service is now available includes text similar to this one:

!FDC 3/7975 (KCLT A0135/13) CLT CHARLOTTE/DOUGLAS INTERNATIONAL AIRPORT AIRSPACE ADS-B SERVICES TISB AND FISB AVBL MARCH 15, 2012. TIS-B SERVICE IS AVAILABLE THROUGHOUT THE NAS WHERE THERE ARE BOTH ADEQUATE SURVEILLANCE COVERAGE (RADAR) AND BROADCAST COVERAGE FROM ADS-B GROUND STATIONS. REPORTS OF TIS-B AND FIS-B MALFUNCTIONS SHOULD BE REPORTED BY RADIO OR TELEPHONE TO THE NEAREST FSS FACILITY.

I wished to report such an issue. No one at any FSS had any clue as to what I was talking about. After escalating to a management level and a few weeks of waiting for a response, the manager indicated that there were no such instructions or procedure available. The issue I wanted to report had to do with TISB at one particular location providing traffic ghosts of my aircraft which is ADS-B equipped.

SUGGESTED ATPAC ACTION: Develop an appropriate procedure for reporting and resolving FISB and TISB problems.

Sponsor: John Collins

Name (Print)

ABS Air Safety Foundation

Organization

April 14, 2014

Date

AREA OF CONCERN 148-01

ACCEPTED: 5/7/14

SAFETY: No

SUBJECT: ADS-B NOTAMS and Problem reporting

148 - The AIM contains a procedure for reporting malfunctions and provides a web link and phone number for reporting. The links do not work, and nobody responded to a message left at the phone number indicated. Lynette Jamison agreed to contact Preston Barber in the FAA Surveillance and Broadcast Services (SBS) Program Office and ask him to work with Flight Service on what information needs to be gathered and what to do with reports received. It was suggested that the AIM should also contain the recommended information for a pilot to provide in the report. Two questions were raised: (1) Do we want the data collected? and if so, (2) What is the process to collect the data? ATPAC accepted the new AOC, which will be AOC 148-01. An update will be requested for the next meeting.

AIR TRAFFIC PROCEDURES ADVISORY COMMITTEE

AREA OF CONCERN & AGENDA ITEM Submission Form



(Check one)

☒ Area of Concern → Safety Item? ☒ Yes
☐ No

☒ Agenda Item

For Admin Use Only
AOC Number: AOC- 148-02
Date: May 6, 2014
Recommendation
Number: R-_____

SUBJECT: Clearances below published altitudes on procedures and airways

DISCUSSION: There are many reports from pilots that ATC is clearing an aircraft to fly altitudes below published minimums on approaches and airways. This is a dangerous practice as evidenced by the fatal accident in Alaska by “NTSB Identification: ANC13FA030 Nonscheduled 14 CFR Part 135: Air Taxi & Commuter Accident occurred Friday, March 08, 2013 in Aleknagik, AK Aircraft: BEECH 1900C, registration: N116AX.” Excerpts from the preliminary accident report:

“On March 8, 2013, about 0814 Alaska standard time, a twin-engine turboprop Beech 1900C airplane, N116AX, was destroyed when it impacted rising terrain about 10 miles east of Aleknagik, Alaska.”

“According to Federal Aviation Administration (FAA) personnel, as the airplane approached Dillingham, the flight crew requested the RNAV GPS 19 instrument approach to the Dillingham Airport about 0757 from controllers at the Anchorage Air Route Traffic Control Center (ARTCC). The ARTCC specialist on duty subsequently granted the request by issuing the clearance, with instructions to proceed direct to the Initial Approach Fix (IAF) to begin the approach, and to maintain an altitude of 2,000 feet or above.”

Example: KGFL GFL V91 ALB, a pilot reports he always gets V91, maintain 3000, ... This is not a vector direct ALB. The MEA is 7000 with a 5000G on the chart. There isn't a MOCA published for this route segment. I think this is a safe altitude, but it is setting a bad precedent. Most likely in this case, the MEA is set for flight in the other direction to make a crossing altitude. The chart should be changed if this is the case, rather than regularly breaking the rule and assigning an altitude below the published MEA.

Pilot anecdote 1:

“It did happen to me yesterday. While enroute from Santa Barbara to Santa Maria on an IFR clearance, I departed GVO on V27, at 6000', and about 5 miles later, was cleared direct ELZUS, which is the IF for my requested RNAV 30 approach. Within a minute or so, I was told to descend and maintain 3000. I noticed the 3500 minimum altitude for the segment I was flying, and queried the controller about his 3000' clearance. He re-affirmed his altitude instruction. A few minutes later, he said to cross ELZUS at or above 3000', cleared for the RNAV 30 approach to KSMX.”

Pilot anecdote 2:

“Timely discussion. Day before yesterday I was flying into KAAF from the north. 'Twas a murkey day, overcast 600. Tyndall approach cleared me to FEZCU, descend and maintain 2000. Problem is that the segment minimum is 2300, and FEZCU is to be crossed at or above 2300. Admittedly this isn't a real problem...given that most of the approach is over the gulf, but”

Controllers have to follow the approach chart just like pilots and when they improvise with lower altitudes, it doesn't always work out as was the case in Alaska,

SUGGESTED ATPAC ACTION: Clarify the conditions under which ATC may clear an aircraft on a charted route or procedure at an altitude below the charted minimum. Update the AIM to provide guidance to pilots and if needed, clarify 7110.65V.

Sponsor: John Collins

Name (Print)

ABS ASF

Organization

April 14, 2014

Date

AREA OF CONCERN 148-02

ACCEPTED: 5/7/14

SAFETY: No

SUBJECT: Clearances below published altitudes on procedures and airways

148 - During the discussion, it was noted that, in accordance with FAA Order 7110.65V, para 4-5-6, an aircraft may be cleared below the minimum enroute altitude (MEA) but not below the minimum obstruction clearance altitude (MOCA). In the situation where an aircraft is on an airway and no MOCA is published, the aircraft should be at or above the MEA. In the case cited in the AOC, the aircraft should have been cleared at or above the altitude published at the initial approach fix (IAF). A question also was raised as to why no MOCA was published. This is a flight procedures and charting issue and will be referred to the ACF. The AOC was accepted and action assigned to AJV-8, who will provide an update at the next meeting.

ATPAC 148 – ATC Clearances below charted Altitudes By John Collins

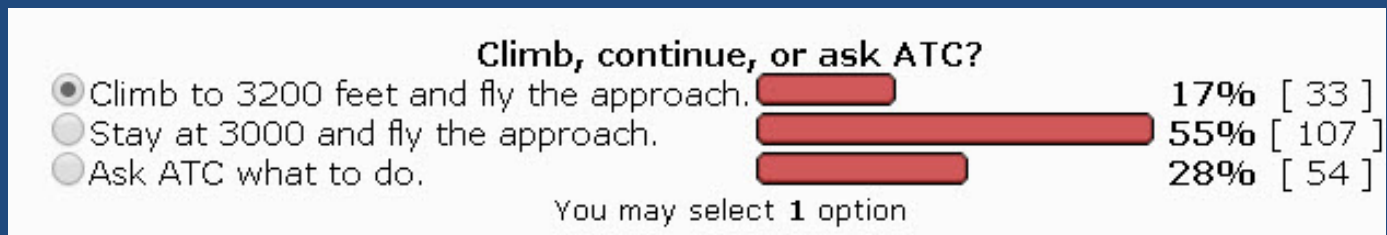


Recently, a controller posted this poll on a pilot Forum:

A little help from our IFR pilots please. We're briefing our controllers on RNAV approaches as a refresher, and we're discussing the TAA and minimum IFR altitudes. I'd like to know what your response would be to the following scenario:

ATC clears you to an IAF on an RNAV approach and to descend to 3000 feet. You are now established in the TAA at 3000 feet, and the approach plate shows your minimum altitude as 3200 feet. ATC clears you for the approach. What do you do?

This was the pilot's response:



NTSB Identification: **ANC13FA030**

Nonscheduled 14 CFR Part 135: Air Taxi & Commuter

Accident occurred Friday, March 08, 2013 in Aleknagik, AK

Aircraft: BEECH 1900C, registration: N116AX

Injuries: 2 Fatal.

According to Federal Aviation Administration (FAA) personnel, as the airplane approached Dillingham, the flight crew requested the RNAV GPS 19 instrument approach to the Dillingham Airport about 0757 from controllers at the Anchorage Air Route Traffic Control Center (ARTCC). The ARTCC specialist on duty subsequently granted the request by issuing the clearance, with instructions to **proceed direct to the Initial Approach Fix (IAF) to begin the approach, and to maintain an altitude of 2,000 feet or above**. A short time later the flight crew requested to enter a holding pattern at the IAF so that they could contact the Flight Service Station (FSS) for a runway conditions report, and the ARTCC specialist granted that request. The ARTCC specialist then made several attempts to contact the aircraft, but was unsuccessful and subsequently lost radar track on the aircraft.

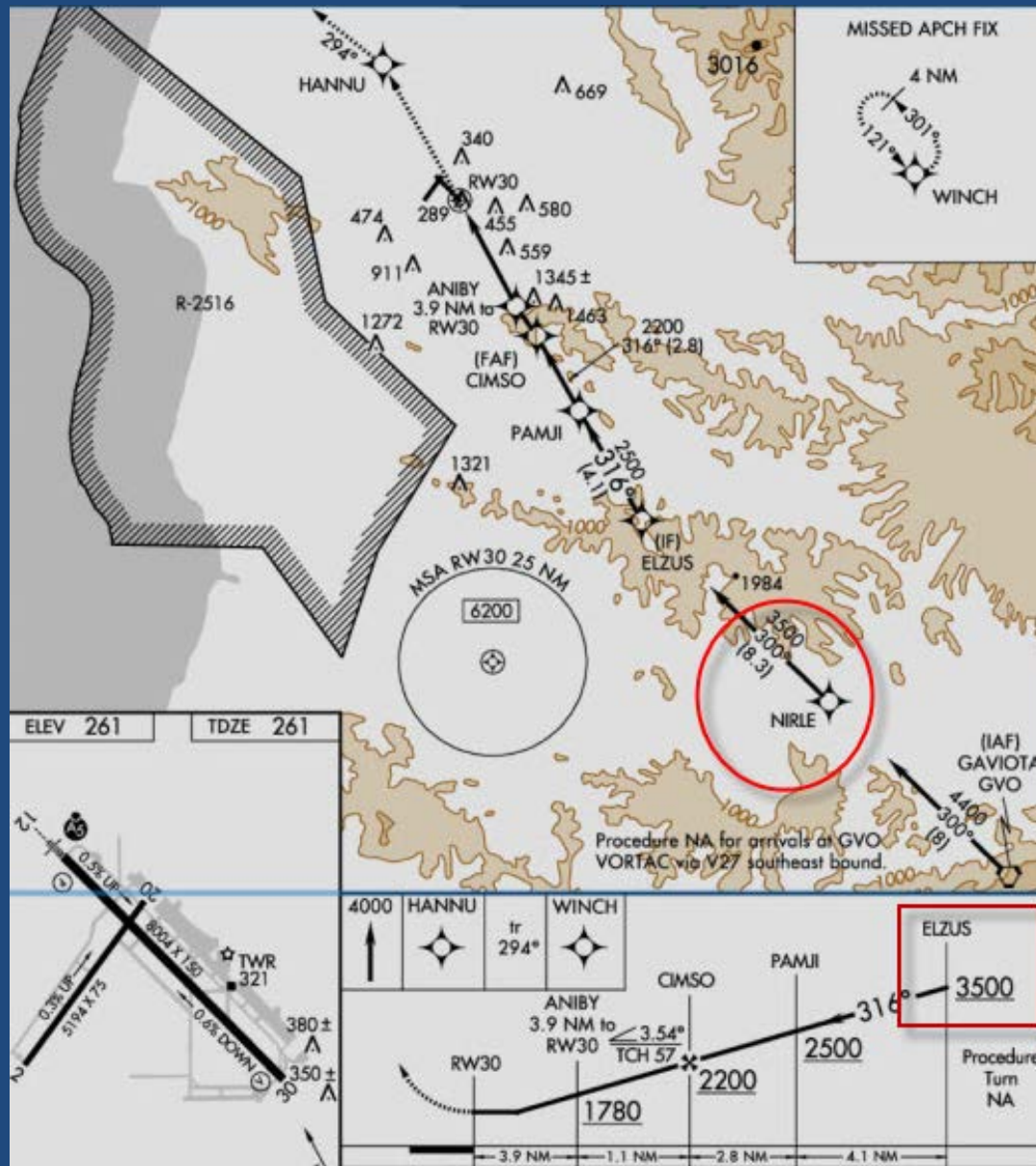


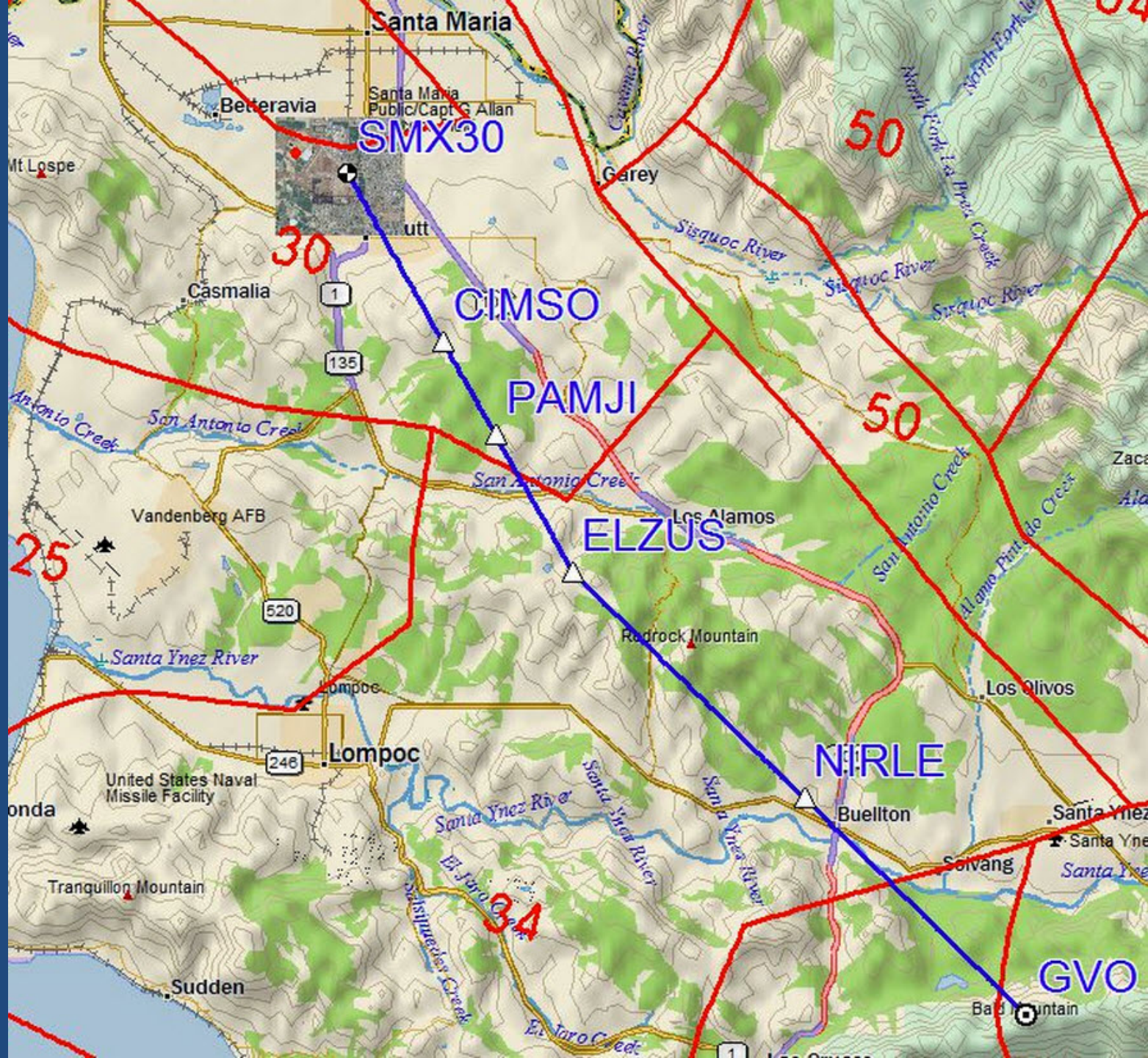
From a pilot who responded to the Forum question:

It did happen to me yesterday. While enroute from Santa Barbara to Santa Maria on an IFR clearance, I departed GVO on V27, at 6000', and about 5 miles later, was cleared direct ELZUS, which is the IF for my requested RNAV 30 approach.

Within a minute or so, I was told to descend and maintain 3000. I noticed the 3500 minimum altitude for the segment I was flying, and queried the controller about his 3000' clearance. He re-affirmed his altitude instruction. A few minutes later, he said to cross ELZUS at or above 3000', cleared for the RNAV 30 approach to KSMX.







A report from another pilot:

The route is from KGFL, my home airport, to Albany ALB. The VOR on the field is GFL. Albany is KALB and the VOR on the field is ALB. V91 is the route between the two and the MEA is 7000 unless GPS equipped, then its 5000.

They always assign V91 at 3,000 (not a vector) and I've never received higher than 4,000 It's quite flat. The question was is it a legal clearance to accept. It's above their MVAs and above the initial altitudes for approaches at Albany but it doesn't make sense.



AIR TRAFFIC PROCEDURES ADVISORY COMMITTEE

AREA OF CONCERN & AGENDA ITEM Submission Form



(Check one)

☒ Area of Concern → Safety Item? ☐ Yes
☒ No

☒ Agenda Item

For Admin Use Only
AOC Number: AOC- 148-04
Date: 04/16/14
Recommendation
Number: R-_____

SUBJECT: Procedure NA at Night

DISCUSSION: More and more Instrument Approaches are having the note added the “Procedure is NA at night” because of greater attention to obstacles penetrating the 20 to 1 visual segment OCS. More and more instances of this situation are affecting GA pilots at airports they utilize. There is a common misunderstanding by controllers and pilots when night begins and ends. FAR 1.1 General Definitions states the following:

Night means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time.

Unfortunately, some controllers will not provide a clearance for an approach when it is close to sunset. Sunset precedes the beginning of night by approximately 30 minutes in most of the CONUS. This can be very disruptive to pilots who are arriving at their destination or home base near sunset but while an approach is still permitted if the controller refuses providing a clearance for the approach.

Section 4-8-1 (a) lists the following note 2.

Approach clearances are issued based on known traffic. The receipt of an approach clearance does not relieve the pilot of his/her responsibility to comply with applicable Parts of Title 14 of the Code of Federal Regulations and the notations on instrument approach charts which levy on the pilot the responsibility to comply with or act on an instruction; for example, “Straight-in minima not authorized at night,” “Procedure not authorized when glideslope/glidepath not used,” “Use of procedure limited to aircraft authorized to use airport,” or “Procedure not authorized at night.”

This implies that it is the pilot responsibility to comply with the charted approach procedure and its notes and I question the authority of the controller to not issue the approach clearance. In one anecdote, a pilot was not granted an approach because the time of sunset was not converted to local time because of a time zone difference between the controller location and the airport. The pilot protested that it was still daylight but the controller did not relent stating that he could not adjust the time to local time at the airport.

SUGGESTED ATPAC ACTION: Provide education to controllers on the FAA definition of night. Controllers should provide clearances for an approach which are NA at night when the

procedure may reasonably be completed prior to the onset of night based on the FAA definition of night and not an arbitrary definition.

Sponsor: John Collins

Name (Print)

ABS ASF

Organization

April 14, 2014

Date

Procedure NA at Night
by
John Collins

- Night Approaches are NA if there are unlit obstacle penetrations of the 20 to 1 Visual Surface
- A VGSI may be used for mitigation in some cases
- FAA is enforcing the Night NA restriction (A good thing)
- A consequence is that Night access to many airports (predominantly GA although not exclusively) is restricted, particularly during the Fall and winter months
- Some TRACON and Center controllers are further restricting night operations to airports when it is not night time.

Night is defined in FAA regulations in FAR 1.1 Definitions:

Night means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time.

Civil twilight is the period when the Sun is below the horizon but its center is less than 6 degrees below. The "Civil Twilight Starts" time is the dawn or civil dawn, with the center of the Sun at exactly 6 degrees below the horizon. Equally, the "Civil Twilight Ends" time is dusk or civil dusk, when the Sun is 6 degrees below the horizon in the evening.

During civil twilight, the sky is still illuminated, and with clear weather it is brightest in the direction of the Sun. The Moon and the brightest stars and planets may be visible. It is usually bright enough for outdoor activities without additional lighting.

Case Study at KVLL – Detroit TRACON

Controllers will not approve an approach after sunset at KVLL, but well before the onset of night

In a discussion with a pilot who was denied an approach clearance at KVLL:

“Yes I know the definition of "night", and actually I brought that up when I talked to the TRACON supervisor last year. At the time their position was that they weren't allowed to clear you for the approach within an hour of the beginning of "night" (using the correct definition that you gave). Now it's just no clearance after sunset.”

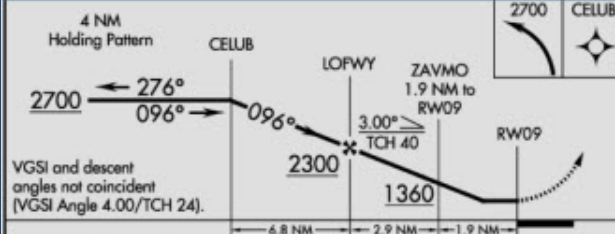
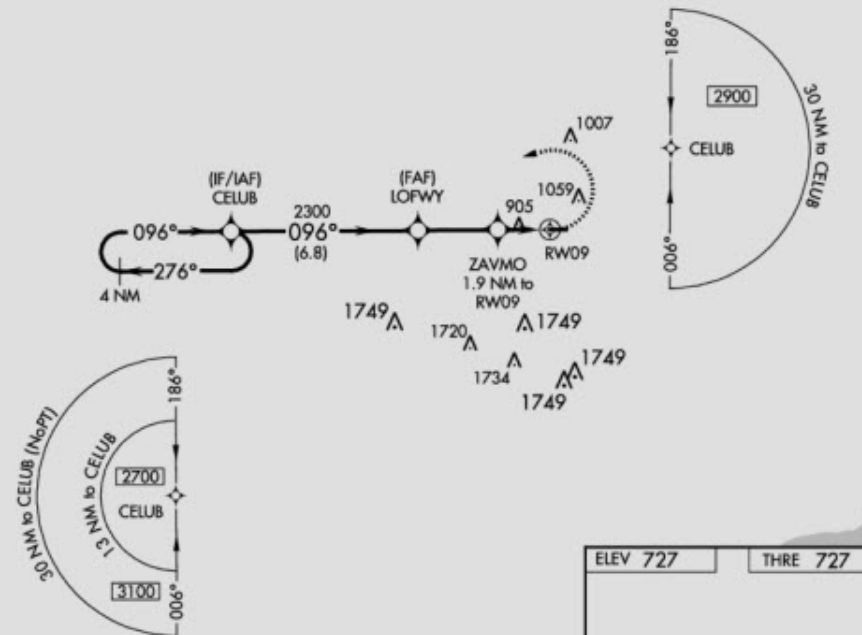
Same pilot with a report early last month April 2014:

I was IFR from 3DA back home to VLL and asked for the RNAV. The Detroit Approach controller at first cleared me for the approach around 2315Z (sunset was at 0003Z), and then rescinded the clearance before I reached the IAF because someone had informed him that he wasn't authorized to clear me for the approach after sunset. So I called the TRACON after landing and asked to speak with a supervisor. I gave the times of when I was denied clearance and sunset in UTC, so there could be no confusion.

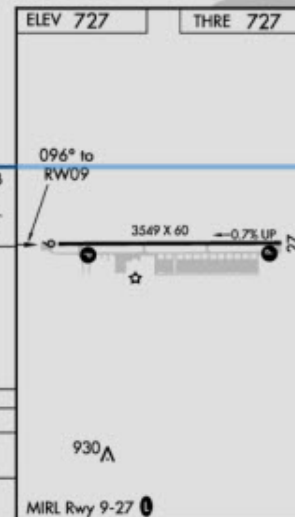
OAKLAND/TROY (VLL)

MISSED APPROACH:
Climbing left turn to 2700
direct CELUB and hold.

UNICOM
123.05 (CTAF) **0**



CATEGORY	A	B	C	D
INAV MDA	1220-1 493 (500-1)		1220-1 $\frac{13}{8}$ 493 (500-1 $\frac{3}{8}$)	NA
CIRCLING	1400-1 673 (700-1)		1400-2 673 (700-2)	NA



This can cause unnecessary difficulty and expense to the pilot as their ground transportation, hangar, and proximity to their ground destination is at their home airport.

7110.65V, 4-8-1 states in note 2 the following:

Approach clearances are issued based on known traffic. The receipt of an approach clearance does not relieve the pilot of his/her responsibility to comply with applicable Parts of Title 14 of the Code of Federal Regulations and the notations on instrument approach charts which levy on the pilot the responsibility to comply with or act on an instruction; e.g., "Straight-in minima not authorized at night," "Procedure not authorized when glideslope/glidepath not used," "Use of procedure limited to aircraft authorized to use airport," or "Procedure not authorized at night".

Conclusion:

I have no problem with ATC advising a pilot that the procedure is NA at Night and that night commences at a specific time (converted to local time). However, a policy of withholding an approach clearance prior to night commencing can be arbitrary, particularly if the definition in the FAA regulations is not applied.

As stated in 7110.65V, it is the pilot's responsibility to comply with the regulations.



**Federal Aviation
Administration**

Aeronautical Mobile Airport Communications System (AeroMACS) Status Briefing

**Presentation to the Air Traffic
Procedures Advisory Committee
May 6, 2014**

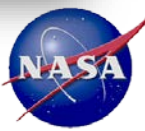
Presented by:

Brent Phillips
NAS Systems Engineering Services Office
Federal Aviation Administration



C-band Datalink Recommendations

- **Develop airport surface system based on IEEE 802.16e standard**
 - [A1.1] **Identify the portions of the IEEE standard best suited for airport surface wireless communications**, identify and develop any missing functionality and propose an aviation specific standard to appropriate standardisation bodies;
 - [A1.2] **Evaluate and validate the performance** of the aviation specific standard to support wireless mobile communications networks operating in the relevant airport surface environments through trials and test bed development;
 - [A1.3] **Propose a channelization methodology** for allocation of safety and regularity of flight services in the band to accommodate a range of airport classes, configurations and operational requirements



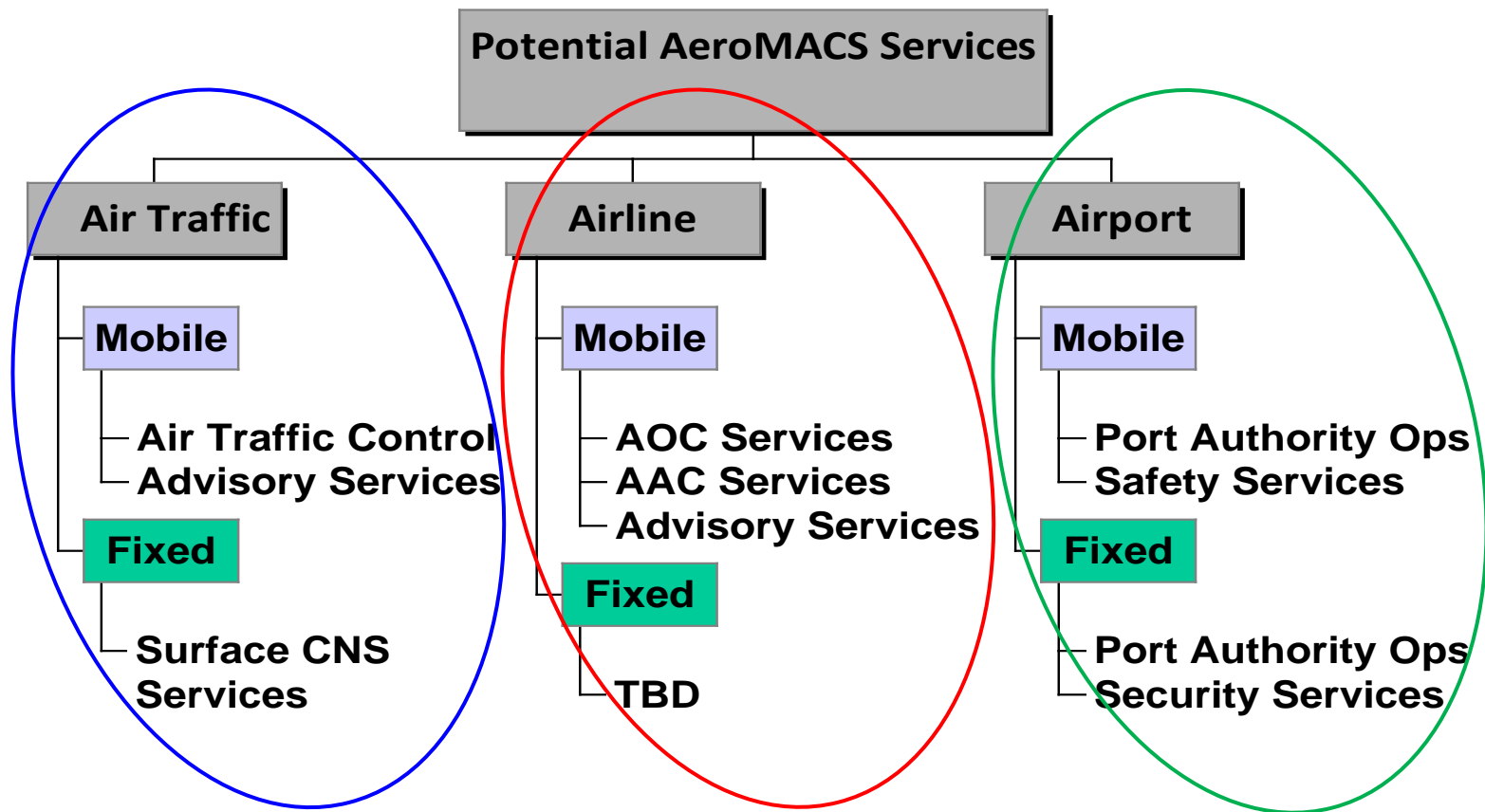
2007 World Radiocommunications Conference Decision



- **The WRC-07 approved adding an AM(R)S allocation for 5091-5150 MHz to the International Table of Frequency Allocations**
 - Removed prior limitation in so-called MLS Extension Band for “support of navigation/surveillance functions”
 - AM(R)S designation for safety and regularity of flight applications
 - No interference allowed with other occupants in the band: non-GEO satellite feeder links and aeronautical telemetry
 - Protected allocation enables ICAO to develop international standards for airport mobile surface (i.e., wheels in contact) wireless communications networks that include fixed assets
 - Ideal for airport surface wireless network with short range (~10 km or less sector coverage) and high data throughput (10s of Mb/s)
- **The WRC-12 did not approve adding an AM(R)S allocation in the 5000-5030 MHz band. This will be addressed on a Regional basis.**



Potential AeroMACS Service Categories in U.S.



- FAA, FTI, Others?
- ARINC, SITA, Airlines, Others?
- Port Authority, Commercial?

AeroMACS Usage Quad Chart

Government (FAA) Fixed

- Cable Loop
 - Permanent alternative
 - Temporary during construction
- Surveillance System Link
 - Airport Surface Radar, ASSC, ADS-B
- Network Enabled Weather

Commercial (Airlines/Airport) Fixed

- Security and Safety Services
 - Cameras, sensors
- Airport facilities status monitoring and maintenance

Government (FAA) Mobile

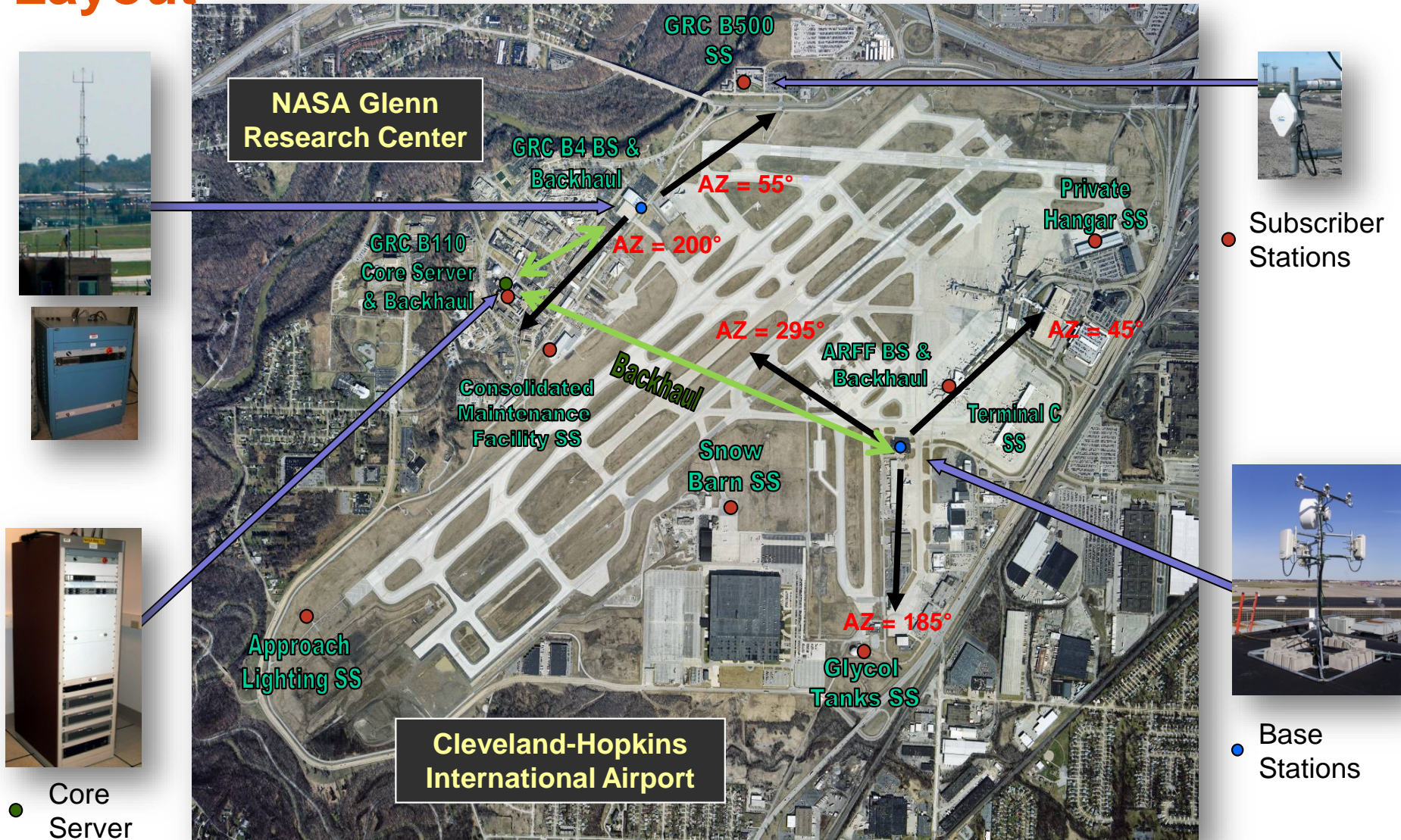
- Air Traffic Control
 - ATC comm with any vehicle in the airport movement area
 - Datalink messaging
 - Loading Flight Management System (FMS) with 4D trajectories
- Aircraft Access to Swim
- Vehicle Tracking

Commercial (Airlines/Airport) Mobile

- AOC
 - Surface management, gate control, flight preparations
 - GPS and Aeronautical Information Services updates (e.g. Moving maps)
 - Graphical weather products delivered to the cockpit
- Vehicle & Asset Tracking
- Surface ops comm



NASA-Cleveland Test Bed AeroMACS Network Layout



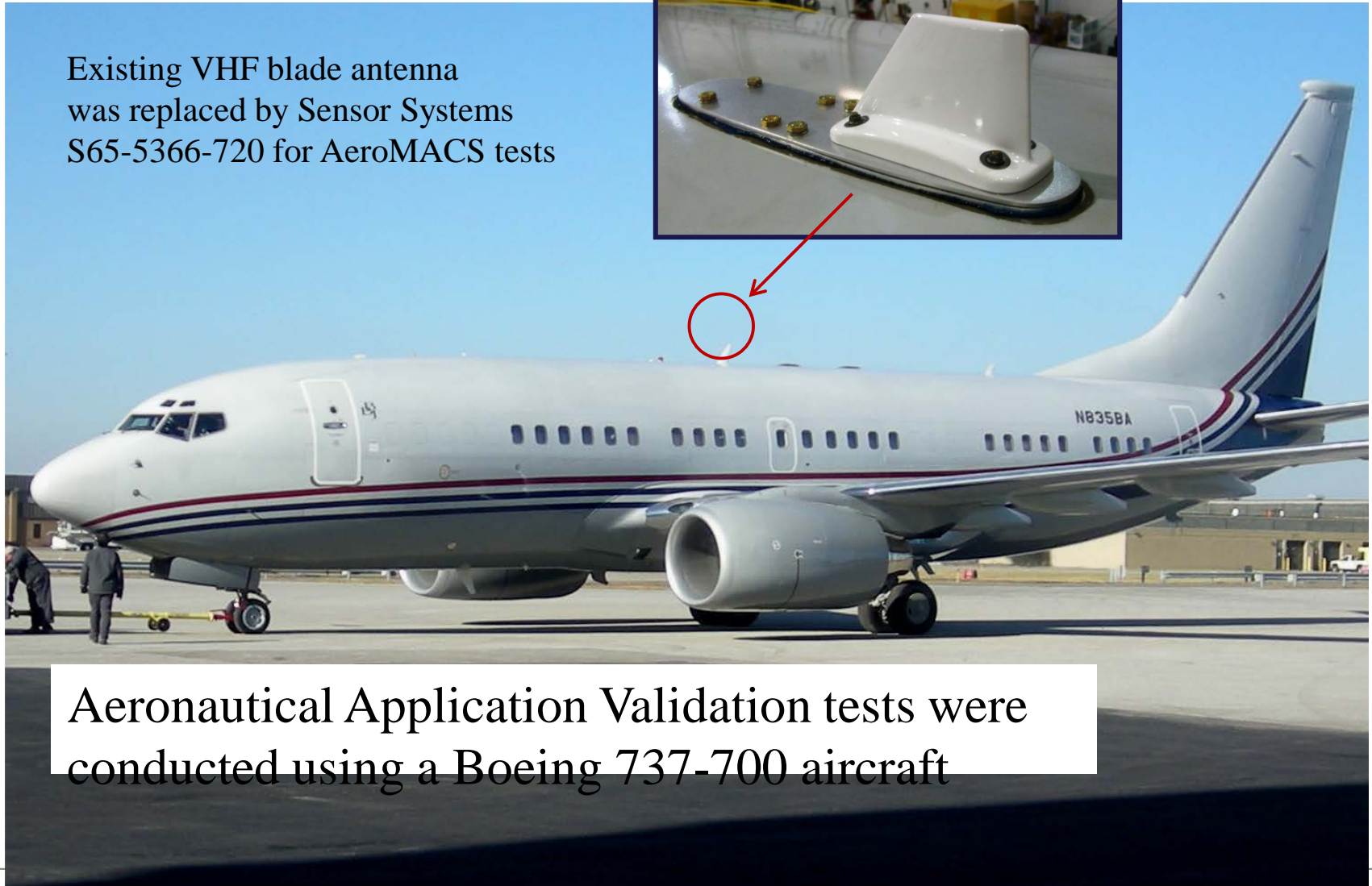
Aeronautical Mobile Application Test Goal

- ITT Exelis conducted an initial aeronautical mobile application test/validation in January 2012.
- The primary goal of this activity was to demonstrate that a two-way data link service could be reliably delivered over the AeroMACS Test Bed providing weather messages emulating:
 - D-OTIS service type messages, e.g. VOLMET messages
 - D-HZWX service type messages, e.g. D-SIGMET messages



AeroMACS Taxi Tests Using Boeing Business Jet

Existing VHF blade antenna
was replaced by Sensor Systems
S65-5366-720 for AeroMACS tests



Aeronautical Application Validation tests were
conducted using a Boeing 737-700 aircraft

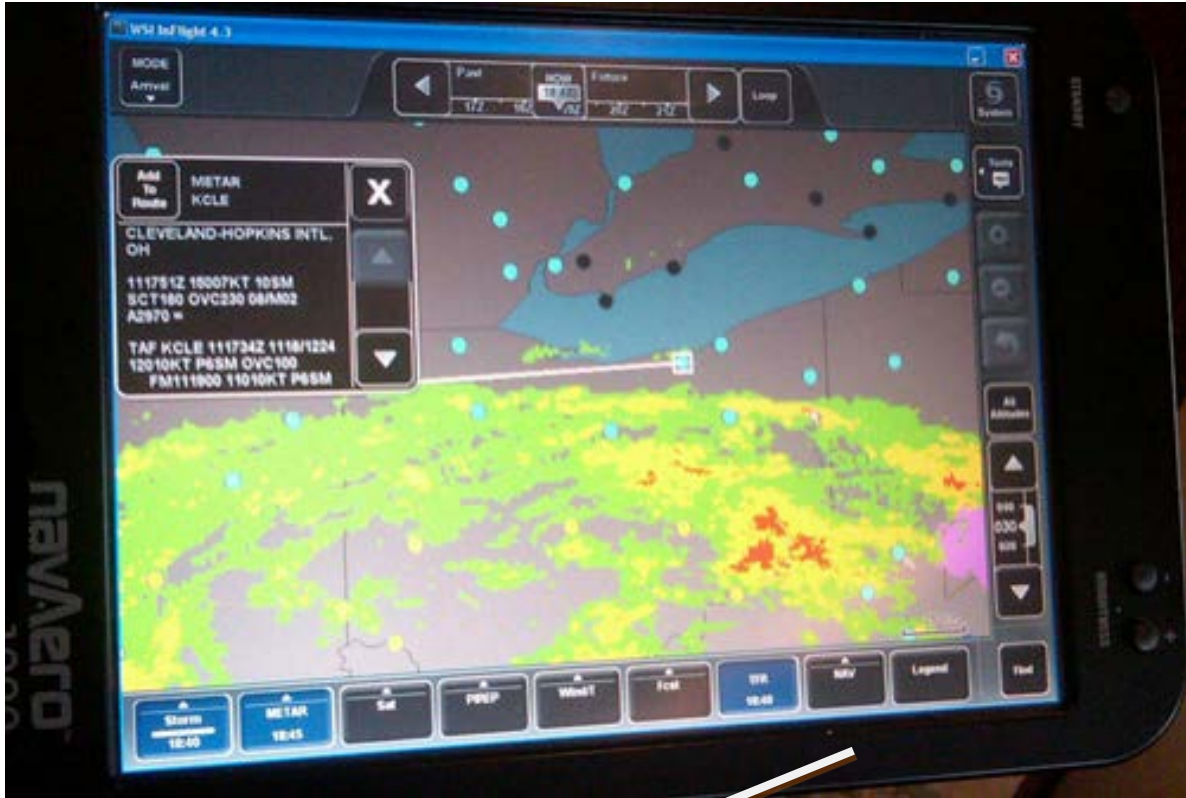


WSI Weather Application

- A WSI weather data feed was provided via AeroMACS to the WSI InFlight weather application installed on an navAero Electronic Flight bag (EFB) on board the test aircraft during the runway test.
- The WSI weather data feed comprises aviation weather significant graphical and text message products for cockpit use.
- The InFlight application was initiated and data flow observed during a runway test.
 - Data collected during runway taxi with the maximum speed of 40 KTS.
 - Weather data displayed on the EFB application was continuously updated.



Weather Map METAR Displayed Through AeroMACS While Mobile at 40 KTS



A sample Weather screen showing radar (with impending rain) and a current METAR for CLE.



RTCA SC-223: Background

- **Special Committee (SC) 223 was approved by PMC in July, 2009**
- **Charter was to develop the profile and the MOPS for Aeronautical Mobile Airport Communication System (AeroMACS)**
- **Supports FAA objective to utilize 5091 MHz to 5150 MHz spectrum allocated by ITU-R for air traffic automation**
- **Active support from aviation industry:**
 - Honeywell – Chair
 - Harris – Profiles Working Group (WG) lead
 - Rockwell Collins – MOPS WG lead
 - Boeing – SC-223 Secretary
 - Airlines – UPS, United-Continental
 - Other vendor support – WiMAX Forum & Hitachi



RTCA SC-223: Current Status

- **AeroMACS Profiles Document**
 - RTCA PMC approved document in December 2013
 - Published as RTCA DO-345
- **AeroMACS MOPS has been finalized and presented to PMC for approval in December 2013**
 - MOPS Presented to PMC in Dec 2013.
 - Approval in March 2014
 - Published as RTCA DO-346
- **FAA Regulatory status**
 - FAA prepared draft Advisory Circular for AeroMACS and coordinated with field offices
 - FAA will release AC for industry comments as soon as the MOPS is published by RTCA
- **Both Profiles and MOPS harmonized with EUROCAE**



ICAO WG-S

- **ICAO Aeronautical Communication Panel (ACP) approved WG-S (Surface) to develop AeroMACS**
 - One of three core technologies for future comm.
 - Included in the Global Air Navigation Plan
- **Dedicated spectrum in the 5091 MHz to 5150MHz MLS Extension band allocated globally by ITU and ICAO**
- **First meeting of WG-S was held in March, 2012**
- **Goal is to complete Standards and Recommended Practices (SARPs) in 2014 followed by technical manual**
 - Expected full ICAO approval and incorporation into Air Navigation Annex 10 in 2016
- **Active support and participation from US, Eurocontrol, DFS, ENRI/JCAB**



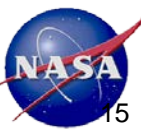
AEEC Support for AeroMACS

- **The Systems Architecture and Interfaces (SAI) Group of the AEEC unanimously approved taking the AeroMACS ARINC Project Initiation/Modification (APIM) to the General Session to support the initiation of a Standards body**
- **Support for the activity (as verified)**
 - Airlines: American, FedEx, Southwest, TAP Portugal, United, UPS
 - Airframe Manufacturers: Airbus, Boeing
 - Suppliers: ACSS, Harris, Honeywell, Rockwell Collins, SELEX ES
 - Others: ASRI, EUROCONTROL, FAA, SITA (all TBC)
- **Commitment for Drafting and Meeting Participation (as verified)**
 - Airlines: United, UPS (others TBD)
 - Airframe Manufacturers: Airbus, Boeing [TBC]
 - Suppliers: Harris, Honeywell, Rockwell Collins, SELEX ES
- **The AEEC General Session approved AeroMACS recommendation 16 April 2014**



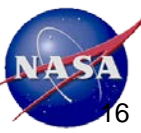
Other FAA On-going Activities

- Airport Surface Surveillance Capability (ASSC) Program contract award. Multi-lateration replacement for ASDE-X at eight initial airports.
 - AeroMACS implementation has begun at SFO.
 - As many as 13 additional Airports
- Supporting other AeroMACS Planned/Potential Implementations:
 - Flexible Terminal Sensor Network: Consolidates all current surface observation systems (ASOS, RVR, LLWAS) onto a single data communication and data processing infrastructure. Prototype test bed at the FAA Tech Center includes AeroMACS.
 - Enhanced Low Visibility Operations: A low cost runway-end infrastructure program designed to increase NAS Capacity and access during low visibility conditions.
 - Others (ASR-9, Airport Vehicle Tracking, Airborne Access to SWIM)



Other FAA On-going Activities (Cont)

- Hitachi and Gem Tech AeroMACS equipment is being installed at the Cleveland Hopkins International Airport AeroMACS Test Bed.
- AeroMACS SARPS Validation Testing will be performed at AeroMACS Test Beds at Cleveland and Toulouse Airports in May-Oct 2014.
- AeroMACS Summit will be held at EUROCONTROL (Brussels) May14-15, 2014
- FAA is developing (at the Direction of the NextGen Chief Scientist; Steve Bradford) an AeroMACS Acquisition Strategy paper.
- Transitioning AeroMACS to an ATO PMO to begin the Acquisition process.



BACK-UP Slides



Potential ATS Applications

- **DLL**
- **FLTPLAN**
- **D-OTIS**
- **DCL**
- **FLIPCY**
- **D-SIG**
- **LOADSHT**
- **D-ALERT**
- **D-TAXI**
- **OOOI**



Other potential applications

EFB related *

- Aircraft Briefing Cards
- Airworthiness Statement
- Crew Briefings
- Company NOTAMs
- De-icing request
- Delay reporting
- e-Charts (update)
- e-Graphical Weather
- e-Signature
- e-Reporting
-
- ** Or similar platform implementation*

- Electronic Flight Folder
- Electronic Airway bill
- Flight Deck Duty Time registration
- Flight Deck Recency registration
- Flight Journal Documentation
- Fuel Tickets
- Notice to Captain
- Landing Performance calculation
- Onboard Video
- Passenger Information List/Manifest
- Pre-Flight Inspection sign-off

AeroMACS FY10 Evaluations

- **Measure data throughput and packet integrity for the following conditions:**
 - 5 and 10 MHz channel bandwidths
 - Stationary and mobile subscriber stations at speeds of at least 40 knots
 - Line-Of-Sight (LOS) and Non-LOS (N-LOS) propagation links
 - Presence of adjacent channel activity
- **Mobility tests with hand-off transition between base station coverage sectors and between base stations**
- **Determine minimum transmit power required to maintain a minimum level of link performance:**
 - Single subscriber station antenna
 - MIMO antenna diversity
- **Characterize link performance when transferring sensor data from MLAT sensors in test bed**
 - Mixture of data traffic streams
 - Traffic priority setting with Quality of Service (QoS) settings



Funded Research Activities in FY11

- **Evaluate selected ATC mobile applications on the aeronautical mobile airport communications system (AeroMACS)**
- **Investigate and resolve remaining issues affecting the final AeroMACS profile inputs to the MOPS process**
 - Evaluate and recommend mobile Source Station (SS) MIMO antenna configurations for mobile SSs
 - Optimize AeroMACS system-level performance (QoS, data throughput, latency, error rate) within ITU limitations on radiated power
 - Resolve channel BW and center frequency spacing plans to satisfy US and European objectives while preserving Spectrum Office flexibility and compatibility with WiMAX Forum practices
 - Validate that the proposed AeroMACS complies with interference requirements for the US proposed allocation at World Radiocommunications Conference in 2012.



RTCA Special Committee 223, EUROCAE WG 82

- **RTCA kicked off SC-223 for profile and MOPS development**
 - Profile (DO-345, ED 222) complete and approved
 - Minimum Operational Performance Spec (DO-346, ED 223) in RTCA approval process.
- **Profile adapts existing WiMAX profile for aeronautical use**
 - Sets channelization, bandwidth, spectrum mask etc
 - Determines settings from profile tables for international compatibility.
- **MOPS adapts WiMAX specifications for TSO.**



AIR TRAFFIC PROCEDURES ADVISORY COMMITTEE

AREA OF CONCERN & AGENDA ITEM Submission Form



(Check one)

X Area of Concern → Safety Item? ☐ Yes

X No

☐ Agenda Item

For Admin Use Only

AOC Number: AOC-141-1

Date: ATPAC #141

Recommendation

Number: R-_____

SUBJECT: Runway Guard Lights (RGL)

DISCUSSION: Doug Thomas, IPA presented new AOC . Bruce McGray, AFS-410 spoke of the inconsistent use of equipment. AFS-410 wants more specific feedback. Bruce will coordinate with Airports group to come to next meeting, Danny will extend invitation. All groups request feedback from membership. There was a motion to accept and seconded. ATPAC will request information from their member groups on this issue.

SUGGESTED ATPAC ACTION: ATPAC will request information from their member groups on this issue. Airport Representative will be asked to attend next ATPAC meeting.

Sponsor: Doug Thomas

Name (Print)

IPA

Organization

ATPAC #141

Date

AREA OF CONCERN 141-1

06/21/11

SAFETY: No

SUBJECT: **Runway Guard Lights (RGL)**

141 –Doug Thomas, IPA presented new AOC. Bruce McGray, AFS-410 spoke of the inconsistent use of equipment. AFS-410 wants more specific feedback. Bruce will coordinate with Airports group to come to next meeting, Danny will extend invitation. All groups request feedback from membership. There was a motion to accept and seconded. ATPAC will request information from their member groups on this issue. Status: Airport Rep invited. Power point presentation

AIM does not have A380 only runway markings ALPHA set to AFS-420 SFO, IAD, SEA Bruce McGray asked Airports about these issues and provided answers to Doug Thomas Louisville Airport misuse of airport markings and the A380 markings. Issues will be further discussed at ATPAC #142 in October. Bruce will forward name of Airports SME to Danny who will invite Airports to discuss issues. Airports showed for morning but did not stay for the rest of the meeting. Agenda item was deferred until ATPAC #143

142 - Power point briefing. (Bruce McGray Philip Saenger) Harvey Hartmann will check data base on reports on airport markings and lights. AFS will check to see if any FSDO violations. Marc Gillian is attending a meeting with IAD will get feedback on airport marking and lights.

143 - AOC 141-1 Runway Guard Lights (RGL) Doug Thoman, IPA presented new AOC. Bruce McGray, AFS-410 spoke of the inconsistent use of equipment. ATPAC # 143 Status Update: Marc Gillman met with IAD did not find any issues with airport markings any longer. Harvey Hartmann checked data base for any write up on airport markings (see attached). Bruce McGray checked FSDO database no reports. IPA stated still issue at SDF. Gary stated he would take direct action on this. Doug Thoman again brought up SDF issue, Gary Norek said he would take an action item on this. Bruce McGray discussed some other issues such as Detroit re-wiring. Some 80 plus airports have issues.

Guests from Runway Safety WG Herb Kind and Meigs discussed focus of their group. Stated some Terminals have very well written SOPs regarding control instruction and they hope to get all airports to follow this standard. But may only be a short term fix. Bruce McGray ALPA stated old rules for training of pilots, ‘you never cross double yellow line and don’t cross red ever ‘without clearance and now they are breaking these rules with the new airport markings.

Dan Bartlett, NTSB, discussed Professional Communication via Phraseology training for pilots and CPCs. NTSB may want to turn this into a mandate to FAA. ALPA and NATCA welcomes NTSB recommendations use of slang and non-acknowledgment by pilots with call sign is a problem in the NAS. NATCA stated CPCs go through multiple over the shoulders and tape talks on phraseology. Dan state NTSB looking for NAS wide solution. DOD and ATPAC factions stated they also have reoccurring training on phraseology. NTSB stated IATA would like to be involved because of the confusion to international pilots.

144 - AOC 141-1 Runway Guard Lights (RGL) Doug Thoman, IPA presented new AOC example at SDF. Bruce McGray, AFS-410 spoke of the inconsistent use of equipment. Bruce McGray discussed some other issues such as Detroit re-wiring and stated some 80 plus airports have issues with inconsistent markings. Bruce presented power point briefing and through this demonstrated how large this problem on confusion of hold lines is becoming in the NAS. He stated there is no common agreement in the FAA. He showed where RWSL DCP does not answer the problem and used examples form the 7110.65, AIM

and 7110.118 to show need for plain language. He questioned how we can elevate the problem and expedite the changes. Airport representation must be part of the solution and stated that AAS-1 needs to be briefed. Bob Lamond and Marc Gittleman second that this become a Safety Item. Harvey and ATSAP will see if they can gather data on this issue and draw up a list of airports. Gary will email Herb King and get status of his work group and see if they are addressing this issue. PPT attached.

145 - AOC 141-1 Runway Guard Lights (RGL) Bruce McGray, AFS-410 spoke of the inconsistent use of equipment. Harvey Hartmann updated data on write up on airport markings, (see attached). More airports have issues as investigation continues. Bruce McGray provided briefing on new data, see attached. Airports could not make ATPAC #145 and Herb King was not able to update Exec Director on issue. Gary Norek will provide information at ATPAC at #146.

146 - AOC 141-1 Runway Guard Lights (RGL) Herb King's group with a NATCA Rep and Bruce Mc Gray, AFS-410 have reached an agreement on this issue. CPC will inform pilot where to stop for runway hold. ATPAC would like to see DCPs written to this topic at next ATPAC meeting.

147 - AOC 141-1 Runway Guard Lights (RGL) – AOC deferred until published.

148 - During the meeting, questions were raised regarding the background of AOC 141-1. Although ATPAC 147 was informed that the change would be published in 7110.65V on April 3, 2014, it is still being worked. The status was therefore moved to existing AOCs and a further update will be provided to ATPAC 149.

AIR TRAFFIC PROCEDURES ADVISORY COMMITTEE



AREA OF CONCERN & AGENDA ITEM Submission Form

(Check one)

☒ Area of Concern → Safety Item? ☐ Yes
☒ No

☒ Agenda Item

For Admin Use Only
AOC Number: AOC-145-2
Date: _____
Recommendation
Number: R-_____

SUBJECT: IFR Separation Services in Class G Airspace

DISCUSSION: NBAA believes the majority of US pilots operate under the assumption that if a controller issues them an IFR route clearance that they are being afforded IFR separation services. However, no separation services are provided by ATC to aircraft operating under IFR in Class G airspace.

SUGGESTED ATPAC ACTION:

ATPAC recommend the AIM, 4-4-11 IFR Separation Standards, be changed as follows (*added verbiage in italics*):

4-4-11 IFR Separation Standards

Separation will be provided between all aircraft operating on IFR flight plans except during that part of the flight (outside of Class B or TRSA) being conducted on a VFR-on-top/VFR conditions clearance. *In addition, pilots are reminded that ATC does not provide IFR separation service in Class G airspace and the filing of a random RNAV routing that transits Class B airspace is considered pilot acknowledgment that no IFR separation service will be provided in transited Class G airspace.* Under these circumstances, ATC may issue traffic advisories, but it is the sole responsibility of the pilot to be vigilant so as to see and avoid other aircraft.

Sponsor: Robert G Lamond Jr

Name (Print)

NBAA

Organization

September xx, 2012

Date

AREA OF CONCERN 145-2

10/2/12

SAFETY: No

SUBJECT: AOC 145-2 CLASS G Airspace

145 - Bob Lamond, NBAA proposed AFS seconded. (See attachment) Class G is uncontrolled airspace. To provide air traffic services in this airspace is exceeding authority. AIM will be checked and AFS advised. ATPAC updated #146.

NBAA believes the majority of US pilots operate under the assumption that if a controller issues them an IFR route clearance that they are being afforded IFR separation services. However, no separation services are provided by ATC to aircraft operating under IFR in Class G airspace.

JO 7110.65 Paragraph 4-4-5 CLASS G AIRSPACE, states:

Include routes through Class G airspace only when requested by the pilot.

Note-

1. Flight plans filed for random RNAV routes through Class G airspace are considered a request by the pilot

2. Flight plans containing MTR segments in/through Class G airspace are considered a request by the pilot.

NBAA believes that Note 1 defeats the protection afforded by conducting en route IFR operations only in controlled airspace. **Harvey Hartman checking data. DCP is being written.**

146 - ATPAC recommended the AIM, 4-4-11 IFR Separation Standards, be changed as follows (*added verbiage in italics*): DCP reads:

Separation will be provided between all aircraft operating on IFR flight plans except during that part of the flight (outside of Class B or TRSA) being conducted on a VFR-on-top/VFR conditions clearance. *In addition, pilots are reminded that ATC does not provide IFR separation service in Class G airspace and the filing of a random RNAV routing that transits Class G airspace is considered pilot acknowledgment that no IFR separation service will be provided in transited Class G airspace.* Under these circumstances, ATC may issue traffic advisories, but it is the sole responsibility of the pilot to be vigilant so as to see and avoid other aircraft.

147 - AOC 145-2 CLASS G Airspace - Bob Lamond, NBAA. Class G is uncontrolled airspace. To provide air traffic services in this airspace is exceeding authority. AIM will be checked and AFS advised. ATPAC updated #146. Harvey Hartman updated the group that data did not support that there was an issue. The DCP was non-concurred by AJV-E and AGC. Bob Lamond asked why this issue cannot be addressed now. He feels that there is a gap that needs to be filled, a lack of clarity as to what the responsibilities are for IFR flights in Class G. Jonathan Gray, Safety stated that the 7110.65 rewrite group has this as a topic and is a safety identified issue (Corrective Action Report (CAR)). He will report on this at next ATPAC. AOC deferred for further discussion.

148 - A question was raised as to the original recommendation in AOC 145-02. The AOC as proposed recommended a change to the AIM, paragraph 4-4-11, IFR Separation Standards. (see Attachment L) ATPAC 146 recommended that AIM, 4-4-11, IFR Separation Standards, be changed as follows (added wording is highlighted in gray):

b. Separation will be provided between all aircraft operating on IFR flight plans except during that part of the flight (outside of Class B or TRSA) being conducted on a VFR-on-top/VFR conditions clearance. In addition, pilots are reminded that ATC does not provide IFR separation service in Class G airspace and the filing of a random RNAV routing that transits Class G airspace is considered pilot acknowledgment that no IFR separation service will be provided in transited Class G airspace. Under these circumstances, ATC may issue traffic advisories, but it is the sole responsibility of the pilot to be vigilant so as to see and avoid other aircraft.

The DCP for this change to the AIM was non-concurred by AJV-8 and the FAA Office of the Chief Counsel (AGC) and the topic was identified as Corrective Action Report (CAR)-2013-016 and assigned to the ATC Handbook Rewrite Group in fall 2013. The ATC Handbook Rewrite Group has developed and forwarded a draft DCP with a definition of CLASS G AIRSPACE for the Pilot/Controller Glossary to AJV-8 for review and submission to stakeholders in the field for comments. Heather Hemdal will provide an update to ATPAC 149. Bruce McGray noted that concerns have been raised regarding the Canadian language. Bruce will provide specific details to Jonathan Gray.



U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Chief Counsel

800 Independence Ave., S.W.
Washington, D.C. 20591

JUN 30 2009

Daniel Murphy
5050 Hibbs Drive Apt D
Columbus, OH 43220-2669

Dear Mr. Murphy:

This is in response to your requests for a legal interpretation that were postmarked on January 29, 2009, and February 4, 2009. In your letters you requested clarification regarding three issues: (1) whether 14 C.F.R. § 91.126(b)(1) allows a pilot to conduct a circling approach with turns to the right to an uncontrolled airport in instrument meteorological conditions (IMC) if the pilot determines that turns to the left are undesirable; (2) whether a pilot may log pilot-in-command (PIC) flight time under 14 C.F.R. § 61.51(e)(1) during a practical test when 14 C.F.R. § 61.47(b) requires that the pilot act as PIC; and (3) to what point must an approach continue to constitute an instrument approach under 14 C.F.R. §§ 61.65(d)(2)(iii)(B) and 61.57(c)(1)(i).¹

Your letter requested clarification of the requirements in section 91.126(b)(1) using the following example. A pilot, flying an aircraft under instrument flight rules in IMC, executes a circling approach to an uncontrolled airport. The airport, by operation of section 91.126(b)(1), has established turns to the left for the approach. However, the pilot determines that turns to the left are undesirable because they are not in the interest of safety (for example, the wing of the aircraft blocks the view of the runway during turns to the left). You ask whether that pilot can make turns to the right on the approach.

Section 91.126(a) states, in relevant part, that each person operating an aircraft on or in the vicinity of an airport in Class G airspace area must comply with the requirements of section 91.126 "[u]nless otherwise authorized or required." Section 91.126(b)(1) states, in relevant part, that when approaching to land at an airport without an operating control tower in Class G airspace, "[e]ach pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right."

The use of "must" in sections 91.126(b)(1) and 91.126(a) do not permit a pilot's discretion in determining in which direction to make turns when approaching the airport. Section 91.126(a) provides an exception to the requirement to make turns to the left if authorized or required by air traffic control (ATC). This exception permits a pilot to request clearance to

¹ Although the incoming request cited "61.67(c)(1)(i)," we believe that the Mr. Murphy intended to cite section 61.57(c)(1)(i) because that section requires six instrument approaches for the purpose of recent instrument experience.

make right hand turns under these circumstances. However, the regulation does not obligate ATC to grant such a request.

Secondly, you inquired about the interplay between section 61.47(b), which states that the examiner is not the PIC for a practical test in the absence of a prior agreement, and section 61.51(e)(1), which governs logging of PIC time. You ask first whether a private pilot certificate holder taking a practical test for an additional rating may log PIC time for the practical test. Additionally, you ask whether a student pilot taking a private pilot practical test may log PIC time for the practical test.

Section 61.47 states, in relevant part, that an examiner is not the PIC of the aircraft during a practical test unless there is a prior agreement with the applicant or a person who otherwise would act as PIC. The practical effect of this section is that the person performing the practical test acts as PIC. As previously stated by the FAA, there is a distinction between logging PIC time and acting as a PIC. See Interpretation to Jason E. Herman (May 21, 2009). 14 C.F.R. § 1.1 defines a pilot in command as the person who has "final authority and responsibility for the operation and safety of the flight." The PIC must be designated before or during the flight and hold the appropriate category, class, and type rating for the conduct of the flight. *Id.* Section 61.51(e) governs the logging of PIC time and, in relevant part, allows logging under three circumstances: (1) when a person is the "sole manipulator of the controls of an aircraft for which the pilot is rated or has privileges"; (2) when a person is the sole occupant of the aircraft; and (3) when a person is acting as PIC of an aircraft on which more than one pilot is required. Section 61.51(e)(4) allows logging of PIC time for student pilots when the student pilot is the sole occupant of the aircraft and has a current solo flight endorsement or is undergoing training and when the student pilot is undergoing training for a pilot certificate or rating.

In your example, the pilot taking a practical test does not meet any of the circumstances for logging PIC time in section 61.51(e). The pilot is neither the sole occupant of the aircraft nor acting as PIC of an aircraft on which more than one pilot is required. That pilot is the sole manipulator of the controls but is not rated and does not have privileges for the aircraft. Under the section 1.1 definition, a pilot must be rated in the aircraft to act as PIC. An exception to this rating requirement has existed since the FAA issued section 61.47 (then as 14 C.F.R. § 61.26) on July 3, 1965. 30 FR 8515. In that final rule, the FAA explained that an unrated pilot is qualified to act as PIC during a practical test because that pilot possesses the appropriate experience prior to the practical test for the particular certificate or rating. Though there have been multiple changes to Part 61 in the intervening years, this exception never has been withdrawn. No similar exception has been made with respect to logging PIC time under section 61.51(e). It is inconsistent that a pilot is permitted to act as PIC but not log PIC time when both sections 1.1 and 61.51 require that the pilot be rated for the aircraft, and the pilot must possess the appropriate experience prior to the practical test. Therefore, a pilot may log PIC time for the practical test. With respect to the student flight referenced in your letter, the student pilot may log PIC flight time for the practical test for the same reason even though the student pilot does not meet any of the section 61.51(e)(4) circumstances.

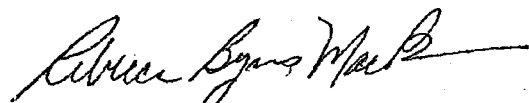
Finally, you asked to what point must an instrument approach continue, whether under actual or simulated conditions, to constitute an instrument approach under sections 61.57(c)(1)(i) and 61.65(d)(2)(iii)(B).

Section 61.57(c)(1)(i) prescribes the recency of instrument experience requirements to act as PIC under IFR or in IMC and states, in relevant part, that a pilot must perform six instrument approaches in the preceding 6 calendar months in the appropriate category of aircraft for which instrument privileges are sought. Section 61.65(d)(2)(iii)(B) establishes the requirements for an instrument rating and states, in relevant part, that an applicant for an instrument rating must complete 40 hours of actual or simulated instrument time that includes at least one cross-country flight in an airplane that is performed under IFR and consists of an instrument approach at each airport.

The FAA previously has interpreted section 61.57(c)(1)(i) to mean that a pilot must follow an instrument approach procedure to the minimum descent altitude or decision height. *See Interpretation to Timothy Slater (Jan. 28, 1992)*. The FAA has not previously interpreted to what point an instrument approach must be followed under section 61.65(d)(2)(iii)(B). However, because of the similarities between the two instrument approach requirements, an instrument approach under that section also must continue to the minimum descent altitude or decision height.

This response was prepared by Robert Hawks, an Attorney in the Regulations Division of the Office of Chief Counsel and coordinated with the Airspace and Rule Group of the Air Traffic Organization and the Certification and General Aviation Operations Branch of Flight Standards Service. We hope this response has been helpful to you. If you have additional questions regarding this matter, please contact us at your convenience at (202) 267-3073.

Sincerely,



Rebecca B. MacPherson
Assistant Chief Counsel for Regulations, AGC-200

Working from the first sentence of the AGC response to Mr. Murphy's question, the actual context that Mr. Murphy is asking his question from is IFR flight in IMC conditions. Instrument Approach Procedures (IAP) circling from an ATC cleared instrument approach procedure is a different subject from what was addressed in the AGC response to what is cited as Murphy's questions.

The following Flight Procedures policy is offered to address the IMC conditions under IFR operations in which "circling" as an IFR procedure is referred to by Mr. Murphy. That policy is different from AGC's reference to VFR traffic patterns. VFR patterns generally fall under the specific requirements of 91.126..

Even in the IFR context 91.126 indirectly has some application. The actual wording in 91.126 that applies to instrument approach procedures in IMC conditions is: "Unless otherwise authorized or required." On an ATC approved instrument approach procedure in IMC conditions the pilot is both otherwise authorized, and may also be otherwise required as stated in 91.126 (a), depending on wind, obscurations and other factors.

In this situation the "uncontrolled" airport [referring to no operating control tower] is normally under IFR controlled airspace requirements of ATC for an instrument approach.

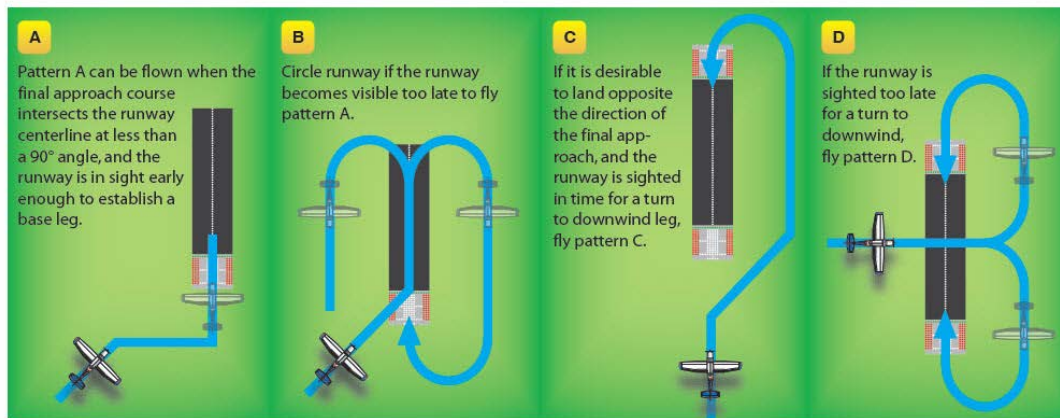


Figure 10-13. Circling approaches.

These patterns illustrate circling approaches a pilot may require during an instrument approach depending on conditions he/she may face at the time of going visual. The chief requirement during IFR circling is to turn so as to remain within the circling protected airspace.

If you have any questions concerning this clarification please contact us at the ATC Procedures Advisory Committee.

Looking at a particular IAP and discussing "circling" in instrument conditions after completing an IAP will clarify the requirements that Mr. Murphy is required to follow.

The VOR Alpha at Winchester, Virginia, KOKV, is a representative approach in which IFR aircraft apply IMC circling criteria to maneuver and land if conditions permit after completing an IAP. The current regulation reads (emphasis is mine):

Sec. 91.126 Operating on or in the vicinity of an airport in Class G airspace.

(a) *General.* **Unless otherwise authorized or required**, each person operating an aircraft on or in the vicinity of an airport in a Class G airspace area must comply with the requirements of this section.

(b) *Direction of turns.* When approaching to land at an airport without an operating control tower in Class G airspace--

- (1) Each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right; and
- (2) Each pilot of a helicopter or a powered parachute must avoid the flow of fixed-wing aircraft.

Office of the Chief Counsel, AGC-200
800 Independence Ave, SW
Washington, DC 20591
ATTN

Reference Daniel Murphy June 30, 2009 Interpretation (Attached)

ATPAC respectfully disagrees with AGC's interpretation to a Mr. Murphy that was dated June 30, 2009. Below we have included in italics the portion of the AGC letter in question, and we follow that with our position on the subject of circling in the type of situation described by Mr. Murphy

Mr. Murphy's question of (1) whether 14 C.F.R. § 91. 126(b)(1) allows a pilot to conduct a circling approach with turns to the right to an uncontrolled airport in instrument meteorological conditions (IMC) if the pilot determines that turns to the left are undesirable; using the Mr. Murphy's following example.

"A pilot, flying an aircraft under instrument flight rules in IMC, executes a circling approach to an uncontrolled airport. The airport, by operation of section 91.126(b)(1), has established turns to the left for the approach. However, the pilot determines that turns to the left are undesirable because they are not in the interest of safety (for example, the wing of the aircraft blocks the view of the runway during turns to the left). Mr. Murphy asked whether that pilot can make turns to the right on the approach."

AGC's response was that Section 91.126(a) states, in relevant part, that each person operating an aircraft on or in the vicinity of an airport in Class G airspace area must comply with the requirements of section 91.126 "[unless otherwise authorized or required]." Section 91. 126(b)(1) states, in relevant part, that when approaching to land at an airport without an operating control tower in Class G airspace, "[each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right.]" The use of "must" in sections 91.126(b)(1) and 91. 126(a) does not permit a pilot's discretion in determining in which direction to make turns when approaching the airport. Section 91.126(a) provides an exception to the requirement to make turns to the left if authorized or required by air traffic control (ATC). This exception permits a pilot to request clearance to make right hand turns under these circumstances. However, the regulation does not obligate ATC to grant such a request.

Mr.Murphy's request involved Instrument Approach Procedures (IAPs) circling from an Air Traffic Control (ATC) clearance. The actual context of his question occurs under Instrument

Flight Rules, (IFR), flight in Instrument Meteorological Conditions (IMC).
The cleared IAP is a different subject from that which was addressed in AGC's response.

Mr. Murphy's questions referred to the following Flight Procedures policy, which addresses the IMC conditions under IFR operations in which "circling" as an IFR procedure is conducted. That policy is different from AGC's reference to Visual Flight Rules, (VFR), traffic patterns.

Also, as a procedural point of clarification, an aircraft on an IAP will not be circling in Class G airspace because the IAP and the circling maneuver all must be contained in Class E or higher. FAA airspace rules prohibit IAPs in Class G airspace.

VFR patterns generally fall under the specific requirements of Part 14 of the Code of Federal Regulations (CFR) 91.126, although even in the IFR context, indirectly 14 CFR 91.126 has some application. The actual wording in 14 CFR 91.126(a) that applies to IAP in IMC conditions is, "Unless otherwise authorized or required." On an ATC-approved IAP in IMC conditions, the pilot is both otherwise "authorized," and may be otherwise "required." Winds, obscurations and other factors determine what circling maneuver is required. In this situation, the "uncontrolled" airport (referring to an airport without an operating control tower) is normally under IFR-controlled airspace requirements of ATC for an instrument approach.

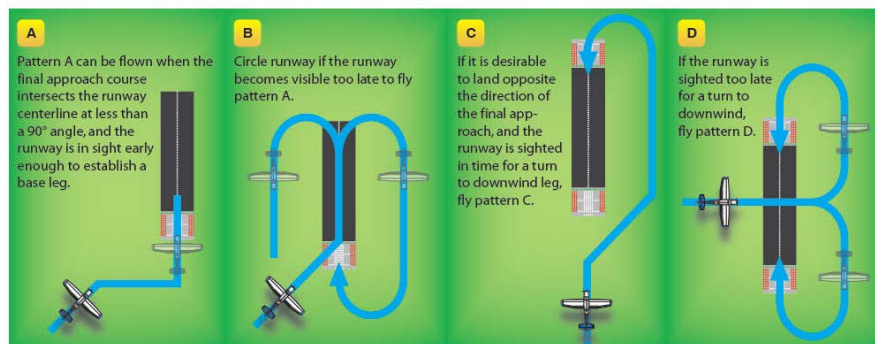


Figure 10-13. Circling approaches.

These patterns illustrate circling approaches a pilot may require during an IAP depending on conditions he/she may face at the time of going visual. The chief requirement during IFR circling is to turn so as to remain within the circling protected airspace.

If you have any questions concerning this clarification, please contact ATC Procedures Advisory Committee (ATPAC), Bruce McGray, , AFS-410 or Cynthia Deyoe, ATPAC POC at 202-493-4321.

Sincerely,

Gary A. Norek
Executive Director ATPAC

Office of the Chief Counsel:

On June 30, 2009, your office issued an opinion to a Daniel Murphy regarding the direction of allowable turns when circling to land at an uncontrolled airport. The following is quoted from the opinion:

Your letter requested clarification of the requirements in section 91.126(b)(1) using the following example. A pilot, flying an aircraft under instrument flight rules in IMC, executes a circling approach to an uncontrolled airport. The airport, by operation of section 91.126(b)(1), has established turns to the left for the approach. However, the pilot determines that turns to the left are undesirable because they are not in the interest of safety (for example, the wing of the aircraft blocks the view of the runway during turns to the left). You ask whether that pilot can make turns to the right on the approach. Section 91.126(a) states, in relevant part, that each person operating an aircraft on or in the vicinity of an airport in Class G airspace area must comply With the requirements of section 91.126 "unless otherwise authorized or required."

Section 91.126(b)(1) states, in relevant part, that when approaching to land at an airport without an operating control tower in Class G airspace, "[e]ach pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right."

The use of "must" in sections 91.126(b)(1) and 91.126(a) do not permit a pilot's discretion in determining which direction to make turns when approaching the airport. Section 91.126(a) provides an exception to the requirement to make turns to the left if authorized or required by air traffic control (ATC). This exception permits a pilot to request clearance to make right hand turns under these circumstances. However, the regulation does not obligate ATC to grant such a request.

The current regulation reads (emphasis is mine):

Sec. 91.126 Operating on or in the vicinity of an airport in Class G airspace.

(a) *General.* **Unless otherwise authorized or required**, each person operating an aircraft on or in the vicinity of an airport in a Class G airspace area must comply with the requirements of this section.

(b) *Direction of turns.* When approaching to land at an airport without an operating control tower in Class G airspace--

(1) Each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right; and

(2) Each pilot of a helicopter or a powered parachute must avoid the flow of fixed-wing aircraft.

(c) *Flap settings.* Except when necessary for training or certification, the pilot in command of a civil turbojet-powered aircraft must use, as a final flap setting, the minimum certificated landing flap setting set forth in the approved performance information in the Airplane Flight Manual for the applicable conditions. However, each

pilot in command has the final authority and responsibility for the safe operation of the pilot's airplane, and may use a different flap setting for that airplane if the pilot determines that it is necessary in the interest of safety.

(d) *Communications with control towers.* Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with Sec. 91.185.

The regulation was not paraphrased accurately in the last paragraph of the above quoted opinion. The words “by air traffic control (ATC)” referred to in the opinion do not appear in 91.126(a). Instead, the exact wording is “**Unless otherwise authorized or required,**”. I believe this is intended and not an omission. 91.126(b) only applies to the case where there is not an operating control tower. Without an operating control tower, ATC does not exercise any authority in class G airspace. In this environment, one is not in communication with a tower. In fact, FAA Order 7110.65U, the following instructions to controllers are provided (emphasis is mine):

4-8-6. CIRCLING APPROACH

a. Circling approach instructions may only be given for aircraft landing at airports with operational control towers.

b. Include in the approach clearance instructions to circle to the runway in use if landing will be made on a runway other than that aligned with the direction of instrument approach. When the direction of the circling maneuver in relation to the airport/runway is required, state the direction (eight cardinal compass points) and specify a left or right base/downwind leg as appropriate.

As best I can tell from the FAA historical documents, Section 91.126 is an outgrowth of the earlier regulation 91.89. When part 91 was renumbered in 1989, 91.89 was restructured to be incorporated into 91.127 and 91-129. Originally, 91.127 dealt with non towered operation and 91.129 dealt with towered operation. The relevant wording in these two regulations in 1989 was:

§ 91.127 Operating on or In the vicinity of an airport: General rules.

(a) Unless otherwise required by part 93 of this chapter, each person operating an aircraft on or in the vicinity of an airport shall comply with the requirements of this section and, if applicable, of § 91.129.

(b) Each person operating an aircraft to or from an airport without an operating control tower shall--

(1) In the case of an airplane approaching to land, make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot shall make all turns to the right;

§91.129 Operation at airports with operating control towers.

[...]

(e) *Approaches*. When approaching to land at an airport with an operating control tower, each pilot of –

(1) An airplane shall circle the airport to the left;

Later 91.126 was added to the regulations when the airspace reclassification was enacted in 1991 to separate class E and class G airspace. Two notable changes occurred at the same time:

- 1) 91.126 added the phrase “Unless otherwise authorized or required” to section (a).
- 2) 91.129 (e) was re-sequenced to (f) and the phrase “Except when conducting a circling approach under Part 97 of this chapter or unless otherwise required by ATC” was added.

I believe that both changes were made dealing with similar issues in that they both anticipated that there were exceptions as a result of differing situations and conflicting regulations and as a result the direction of turn could not be absolute.

In 1994, 91.126 was modified again to clarify the difference between operating in a towered and non towered environment within class G. Sub paragraph (b) was clarified to apply to non towered operation and a new section (d) was added to cover towered communications when they were applicable.

Sec. 91.126 Operating on or in the vicinity of an airport in Class G airspace.

(a) *General*. **Unless otherwise authorized or required**, each person operating an aircraft on or in the vicinity of an airport in a Class G airspace area must comply with the requirements of this section.

(b) *Direction of turns*. When approaching to land at an airport **without an operating control tower** in Class G airspace--

[...]

(d) *Communications with control towers*. Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower.

[...]

There are several distinctions when operating in class G airspace, first, in the vast majority of situations, the aircraft is not likely to be in contact with ATC and ATC does not exercise control in class G airspace unless there is an operating control tower. Second, if the conditions permit circling, they would also permit operation of VFR aircraft in that airspace, as circling minimums are never lower than 1 mile and clear of clouds, which is the VFR minimum. Therefore, a pilot must always consider the possibility of VFR traffic when circling in class G airspace and should make all turn compatible with the established traffic pattern. If the circling minimums are inside class E airspace above class G airspace, then the requirements for VFR flight at the circling altitude may preclude VFR traffic from operating at circling altitude in that airspace, at least

from a legal standpoint. It still makes sense in most cases to follow the established traffic pattern. Note that the pattern altitude and direction is subject to the local authority and may be established because of noise, terrain, or other factors. In the case of circling requirements, they are established according to TERPS and ATC criteria. On a straight in approach, the circling minimums may never be lower than the lowest MDA for a given straight in approach. Sometimes this puts the circling altitude above pattern altitude and in other cases it can be substantially below pattern altitude. It is the exception when the pattern altitude and circling altitude are the same. There are cases where circling is prohibited by part 97, yet the airport uses a standard pattern. An example of this occurs at KBLF Bluefield WV RNAV (GPS) RWY 5 approach in which circling is prohibited east of runway 5/23 yet there are no “approved light signals or visual markings indicating that turns should be made to the right”. (note: the airspace at KBLF is class E except during the hours stated in the AFD, when it reverts to class G airspace). Thus, circling to runway 23 must be to the right, but the pattern direction is to the left. I presume this situation is permitted by the text “unless authorized or required”.

However, other regulations come into play which may **require** a different direction of turn to circle to land other than part 97. 91.175 specifies that when circling to land, one must maintain the minimum flight visibility and clear of clouds. An example would be low hanging clouds on the side of the airport that prevent circling to the left.

The use of the term “**required**” is normally included with a modifier to specify what is required when the regulator wants to specify a specific regulation or authority. In this case, it does not make practical sense to assume it means “if ATC requires” or any other specific modifier as the regulator has no problem using a modifier in other regulations or even this specific terminology when it is intended to refer to ATC as it is later in paragraph 91.126 (d), 91.127 and 91.129. The term is also used in 91.3, but here it refers to situational circumstances and not to a specific regulation “91.3 (b) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent **required** to meet that emergency”. This reference to 91.3 is simply to provide an example where the use of the modifier to the word “**required**” is clearly situational. By not restricting the wording of “**required**” with a modifier, it is apparent that the regulator anticipated circumstances that might be both regulatory and or situational. In other words, if the regulator wanted to restrict the meaning to just regulation conflicts, they could have said “required by regulations of this part” or referenced to any specific regulation as is common in the wording of numerous other regulations.

The FAA provides pilots with information in the form of AC’s, the AIM and other publications. Although they are not regulatory, according to the AIM, it states:

Flight Information Publication Policy d. This publication, while not regulatory, provides information which reflects examples of operating techniques and procedures which may be requirements in other federal publications or regulations. It is made available solely to assist pilots in executing their responsibilities required by other publications.

The AIM discussion offers the following (emphasis is mine):

5–4–20. Approach and Landing Minimums f. Circling Minimums. In some busy terminal areas, ATC may not allow circling and circling minimums will not be published. Published circling minimums provide obstacle clearance when pilots remain within the appropriate area of protection. Pilots should remain at or above the circling altitude until the aircraft

is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers. Circling may require maneuvers at low

altitude, at low airspeed, and in marginal weather conditions. Pilots must use sound judgment, have an in depth knowledge of their capabilities, and fully understand the aircraft performance to determine the exact circling maneuver since weather, unique airport design, and the aircraft position, altitude, and airspeed must all be considered. The following basic rules apply:

1. Maneuver the shortest path to the base or downwind leg, as appropriate, considering existing weather conditions. There is no restriction from passing over the airport or other runways.

2. It should be recognized that circling maneuvers may be made while VFR or other flying is in progress at the airport. Standard left turns or specific instruction from the controller for maneuvering must be considered when circling to land.

3. At airports without a control tower, it may be desirable to fly over the airport to observe wind and turn indicators and other traffic which may be on the runway or flying in the vicinity of the airport.

REFERENCE– AC 90–66A, Recommended Standards Traffic patterns for Aeronautical Operations at Airports without Operating Control Towers.

4. The missed approach point (MAP) varies depending upon the approach flown. For vertically guided approaches, the MAP is at the decision altitude/decision height. Non-vertically guided and circling procedures share the same MAP and the pilot determines this MAP by timing from the final approach fix, by a fix, a NAVAID, or a waypoint. Circling from a GLS, an ILS without a localizer line of minima or an RNAV (GPS) approach without an LNAV line of minima is prohibited.

Here is what is written in the Instrument Flying Handbook -2012 just published by the FAA:

Turning the shortest direction is not always going to be compatible with left turns.

In “The FAA Instrument Flying Handbook – 2012”, it states (figure 10 is attached to this email):

Figure 10-13 shows patterns that can be used for circling approaches. Pattern A can be flown when the final approach course intersects the runway centerline at less than a 90° angle, and the runway is in sight early enough to establish a base leg. If the runway becomes visible too late to fly pattern A, circle as shown in B. Fly pattern C if it is desirable to land opposite the direction of the final approach, and the runway is sighted in time for a turn to downwind leg. **If the runway is sighted too late for a turn to downwind, fly pattern “D.”** Regardless of the pattern flown, the pilot must maneuver the aircraft to remain within the designated circling area. Refer to section A (“Terms and Landing Minima Data”) in the front of each TPP for a description of circling approach categories. The criteria for determining the pattern to be flown are based on personal flying capabilities and knowledge of the performance characteristics of the aircraft. In each instance, the pilot must consider all factors: airport design, ceiling and visibility, wind direction and velocity, final approach course alignment, distance from the final approach fix to the runway, and ATC instructions.

Figure A and figure D shown do not necessarily comply with a strict rule to fly the pattern to the left. In another section of the AIM, it notes that if the alignment with a runway is more than 30

degrees, a straight in approach procedure will not be published and only circling minimums are available. In this situation, turning the shortest distance to align with the runway will not always be compatible with the pattern direction.

It should be abundantly clear that the writers of the AIM and the FAA Instrument Flying Handbook indicate that the pilot must take the direction of circling of potential VFR traffic into consideration but that this is not an absolute mandate as indicated by your referenced interpretation.

I would appreciate it if you would review this decision and coordinate with the appropriate organizations within the FAA as in some cases as currently written, it may lead to an accident and does not currently comport with most pilot's understanding including the writers of the AIM and the Instrument Flying Handbook [as evidenced by their text](#).

Regards,

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Figure 10-13 Circling Approaches.jpg Legal opinion circling direction - when is an approach counted as an approach.pdf

Similar Call Signs

Office of Safety & Technical Training

Presented to: ATPAC

By: P. Som

Date: 05/7/2014



**Federal Aviation
Administration**



Background

- **Similar call signs have been known to cause confusion in controller-pilot communications.**
 - First ASRS study was published in 1983.
- **Runway Safety Program Managers raised the issue as a particular problem in ORD and DEN**
- **In 2010 the ATSAP Central ERC issued CAR-2010-023**
 - The significantly increased usage of four digit call signs by air carriers, combined with the common practice of assigning the same first digits to aircraft departing from the same hub increases the safety risk to the NAS.
- **Identified as one of the 2013 ATO Top 5 issues contributing to risk in the NAS**
- **EUROCONTROL is working on this problem for past four years with reasonable success at addressing it.**



Similar sounding Call Signs – Top5 Selection

Similar sounding Call Signs, resulting in increased opportunity for confusion and incorrect aircraft receiving clearance or reading back clearance.

- **5 high risk events involved this issue**
- **548 ATSEP reports related to this issue**

Roadmap

- **What constitutes similar?**
- **Past Studies**
- **Rules to consider**
- **ATSAP data analysis**
- **Recommendations**



What constitutes “Similar”?

- **Visually Similar**

- Visually similar call signs increase the chances of controllers picking up the wrong flight strip. (Controller Confusion)

Characters most likely to be confused are:

- **0 and O**
- **0 and 8**
- **1 and I**
- **2 and Z**
- **5 and S**
- **V and U**

Example: 3406 and 3486 – with old printer “0” and “8” are hardly distinguishable.

What constitutes “Similar”?

- **Aurally Similar (Similar Sounding)**

- Aurally similar sounding call signs increase the chances of pilots accepting a clearance intended for another aircraft. (Pilot Confusion)

Example: 4156 and 4166. 66 and 56 have more syllables in common when spoken as “sixty-six and fifty-six” than as “six six and five six”. 14 and 41 are more less confusable when spoken as “fourteen and forty-one” than as “one four and four one”.

Past Studies

- CAA (Civil Aviation Authority, UK) study on call sign confusions used 482 reports for 1997
- 66% of call sign confusions were within *same airline*
- 84% of call sign confusions had *only numbers* in the call sign (e.g., BAW 99 vs BAW 9L)
- Only 10% of call sign confusions involved call signs with *alpha-numeric's* (numbers and letters)
- Almost 70% of call sign confusions involved call signs ending with *same number* or *same letter*.



Past Studies

- **NATS (National Air Traffic Services, UK) study on call sign confusions (437 reports from 2004 and 2005)**
- **88% call sign confusions were within *same airline***
- **81% of call sign confusions had *only numbers* in the call sign**
 - But only 65% of the flights have call signs with only numbers
- **Only 4% of call sign confusions involved call signs with *two letters***
 - But 14% of the flights have this format
- **“The use of *four digit* call signs has increased communication error.”**
- **Caveats:**
 - Included all environments
 - Didn’t separate out visual vs auditory confusions
 - Didn’t analyze pilot errors and controller errors separately.



EUROCONTROL

- Eurocontrol working on Call Sign Similarity for past 4 years
- Best defense against call sign confusion consists of *eliminating*, or reducing the chance of having two (or more) aircraft with *similar call signs* on the *same radio frequency* at the *same time window*.
- Identified 11 fairly exhaustive rules to detect Similar Call Signs
- Provides Similar Call Sign '*Detection*' and '*De-Confliction*' services to air carriers
- Work in Progress on inter-Airlines Similar Call Signs



EUROCONTROL – Call Sign Rules

Call Sign Similarity Rules

General Similarity Rules (Applicable to flights within a single AO schedule, i.e. AO ICAO designator remains the same)

The following similarity rules are recommended by the CSS User Group. The order within the following table is significant with the most critical rules at the top.

Legend

Acceptable Format

Single AO Similarity Rule

Single Call Sign Similarity Rule

Name	Individual Rule Description	Special considerations for this rule	Examples		Rule ID
			Not acceptable	Acceptable	
C/S Format	Call Signs need to comply with the allowed formats (see ICAO Doc.4444 Field 7 (a), Aircraft Identification). Normal format: 3 letter ICAO AO designator followed by 1 to 4 alphanumeric characters (Flight Id).	The CSSUG have agreed that the following formats for the Flight Id should be adhered to: Pure numeric: n, nn, nnn, nnnn 1-final letter: nA, nnA, nnnA 2-final letters: nAA, nnAA	ABC 4B63, ABC F27	ABC 1, ABC 1234, ABC 23T, ABC 34TD	ZG00
Identical Final Digits	Checks for 2 identical final digits in the Flight Ids		ABC 234 vs ABC 534		AG62
Identical Bi-grams	Checks for blocks of contiguous characters which form a bigram.		ABC 224 KF vs ABC 36 KF ABC 36 KF vs ABC 528 KF		AG67
Letters To Avoid	Some single letters may be easily confused with digits and are therefore best avoided.	Single letters, eg. "O" vs "0", "I" vs "1"	ABC 8411, ABC 4600		ZG08
Anagrams	Checks for anagrams occurring within the Flight Ids		ABC 1368 vs ABC 1368 vs ABC 1638 vs ABC 1663 vs ABC 1836 vs ABD 1863 etc.		AG63
Identical Block Digits	Checks for Calls Signs which form blocks of contiguous identical characters which are: • the same length, or • 2 versus 3 characters, or • 3 versus 4 characters		ABC 52 vs ABC 352 vs ABC 524 vs ABC 52L		AG64
Parallel Characters	Checks if characters composing the Call Signs form parallel alignment of identical characters.		ABC 41 vs ABC 401 vs ABC 4351		AG65
Identical Digit Roots	Checks for prefix blocks (roots) of identical digits.		ABC 57 vs ABC 573 vs ABC 5746		AG66
Identical Final Letter	Checks for Call Signs with identical final letter.		ABC 23L vs ABC 257L ABC 54L vs ABC 637L		AG68

EUROCONTROL – Call Sign Rules

Triple Repetition	A specific form of similarity where 3 digits are repeated within a Flight Id	With 3 repeated digits there is a risk of dropping one of the digits, which could cause confusion with a different Flight Id.	ABC 111, ABC 444		ZG09
Flight Level Values	A specific form of similarity where the Flight Id is equal to the digits used in a flight level communication.	ICAO Doc 8585 recommends that, wherever, practicable 0 and 5 should not be used as the final figure in ATC Call signs. Values 040, 050, ..., 390, 400, 410 may cause confusion with Flight levels, but this only applies to the format nnn	ABC 330, ABC 095	ABC 1320, ABC 50	ZG01
Any Runway Values	A specific form of similarity where a Flight Id is equal to the runway identifiers.	Combinations of numbers ranging from 01-36 (two digits only) followed by the letters L and R should be avoided. Only applicable to the format nn or nnA. Avoidance of the actual runway designators at departure and destination aerodromes is recommended.	ABC 36L, ABC 15, ABC 16R		ZG03

Rules to Consider for NAS

A preliminary look at data reveals that the following Call Sign rules could provide improvement in the NAS

Table1

Sl. No.	Name	Individual Rule Description	Examples	Comments
1	Identical Final Digits	Check for 2 identical final digits in the call sign	XYZ 234 vs XYZ 834	
2	Identical Initial Digits (Root)	Check for 2 identical initial digits in the call sign	XYZ 57 vs XYZ 576 vs XYZ 5721	
3	Anagram/Transpose	Check for 2-digit anagram or transposition	XYZ 4731 vs 4713 XYZ 4731 vs XYZ 7431 XYZ 1638 vs 1368	
4	Same First and Last Alphanumerics	Check if call sign digits have same first and last characters	XYZ 324 vs XYZ 354	

Rules to Consider

Table1

Sl. No.	Name	Individual Rule Description	Examples	Comments
5	Same Relative Positions (Blocks)	Check if two of four digits are identical and in the same relative position of the call sign – not captured in rules 1, 2, and 4	1357 and 1458 7145 and 8135	Call Signs NOT covered by Rules 1,2 and 4
6	Identical Final Letter	Check for call signs with identical final letter	XYZ 23L vs XYZ 257L XYZ 54L vs XYZ 637L	
7	Flight Level Values	A specific form of similarity where the Flight Id is equal to the digits in a flight level	XYZ 330, XYZ 095	ICAO Doc 8585 recommends that, wherever practicable, 0 and 5 should not be used as the final figure in ATC Call signs. Values 040, 050,390, 400, 410 may cause confusion with Flight Levels

Rules to Consider

Table1

Sl. No.	Name	Individual Rule Description	Examples	Comments
8	Any Runway Values	A specific form of similarity where a call sign is equal to the runway identifier	XYZ 36L, XYZ 15, XYZ 16R	Combinations of numbers ranging from 01-36 (two digits only) followed by the letters L and R should be avoided
9	Taxiway Characters	A specific form of similarity where a call sign includes taxiway Identifiers	XYZ 334J XYZ 581H	Avoid major taxiway identifiers at the departure, arrival and alternate runways as a suffix to the call sign

Challenge

- **Is the Similar Call Sign a local problem or pervasive throughout the NAS ?**
- **How effective are these rules?**
- **Which rule is more effective than the other?**
- **Are there other rules that have not been identified yet?**
- **Detection vs. De-confliction**

Breakthrough- ATSAP Data

- **ATSAP (Air Traffic Safety Action Program) data collected for Sept 2008 – Oct 2012.**
- **548 Reports involving Similar Call Sign issue**
- **ATSAP Reports from all facilities**
 - Towers: 158
 - TRACONs: 78
 - ARTCCs: 312



ATSAP Data Analysis

- **Analyze the ATSAP data/reports to identify the similar call sign events occurring in accordance with the rules in TABLE 1**
- **Identify Rules which might not be captured before**
- **Find the ‘frequency of occurrence’ of a particular rule**
- **Higher frequency of a rule indicates more relevance of the rule in identifying Call Sign Similarity**
- **Lower frequency – less relevant**
- **Short list a set of Relevant Rules from the ATSAP data**

ATSAP Data Analysis - Results

- Total 548 ATSAP reports were used for the analysis
- Total of 694 aircraft pairs in reports
- 70 pairs were GA
- 624 Air Carrier pairs
- 84% of pairs were from *same* Air Carriers
- 16% of pairs were from *different* Air Carriers

ATSAP Data Analysis - Results

	Description	Examples of Flight Number Pairs	Percent of flight number pairs
1. Identical Final Two Alphanumerics	Last two digits, letters, or combination of digits and letters in the call sign are the same	7234 and 834 783A and 523A 766TR and 987TR	30%
2. Identical First Two Digits	First two digits in the call sign are the same	57 and 576 57 and 5721	34%
3. Identical First and Final Digits with Middle 2 Digits Transposed	First and last digits in a four-digit call sign are the same with the middle two digits transposed	4173 and 4713 1368 and 1638	2%

ATSAP Data Analysis - Results

	Description	Examples of Flight Number Pairs	Percent of flight number pairs
4. Same First and Last Alphanumerics	First and last digits in a three or four-digit call sign are the same	411 and 451 1726 and 1836	37%
5. Same Relative Positions (Blocks)	Two of four digits are identical and in the same relative position of the call sign – not captured in rules 1, 2, and 4	1357 and 1458 7145 and 8135	13%
6. Same Final Letter	Call signs end in the same letter.	76A and 893A	8%

ATSAP Data Analysis - Results

	Description	Examples of Flight Number Pairs	Percent of flight number pairs
7. Similar Air Carrier Name		<ul style="list-style-type: none"> - Compass vs Compass Rose -Ryan vs Ryan International -Frontier vs Frontier Flight 	8 instances
8. Identical Flight Number – <i>Different</i> Carriers		XYZ 3452 and LMN 3452	7%
9. Taxiway Characters	A specific form of similarity where a call sign includes taxiway Identifiers	UAL 891C vs Taxiway Charlie	7 instances

Operationally Focused Analysis

- **10% of call sign pairs were GA pairs**
 - 74% ended in the same letter
 - 44% ended in the same two letters
 -
- **90% were pairs of air carrier call signs**
 - 84% were pairs of call signs **within carriers**, e.g., SWA 6656 and SWA 6623
 - 16% involved flight numbers associated with **different carriers**, e.g., AAL 123 and SWA 6623)

Operationally Focused Analysis

	Similar Call Sign Pairs from the <i>Same</i> Air Carrier	Similar Call Sign Pairs from <i>Different</i> Air Carriers
Identical <i>Final</i> Two Digits	27%	33%
Identical <i>First</i> Two Digits	43%	4%

- Thus, call sign pairs from the *same air carriers* are more likely to have the same *first two digits* in common than the same last two digits.
- However, problematic call sign pairs from *different air carriers* were more likely to have the *two last digits* in common.

Pilot using abbreviated Call Signs

- More and more flights are using "shortened" versions of their correct FAA/ICAO designated call signs

Examples:

- "Compass Rose" (CPZ) calling themselves "Compass" (already assigned as CPS)
- "Spirit Wings" (NKS) calling themselves "Spirit" (already assigned as TFN, and close to "Spirit Jet" - SJJ)
- "Frontier Flight" (FFT) calling themselves "Frontier" (close to "Frontier Air" - FTA)
- "Ryan International" (RYN) calling themselves "Ryan" (close to "Ryan Air" - RYA and "Ryanair" – RYR)

Recommendations (Rules)

The following Rules describe what to AVOID when generating Air Carrier Call Signs (validated by ATSAP data analysis):

- ***Rule 1: Identical Final Two Alphanumerics***
- ***Rule 2: Identical First Two Digits (Root)***
- ***Rule 3: Same First and Last Alphaneumerics***
- ***Rule 4: Same Relative Positions (Blocks)***
- ***Rule 5: Identical Flight Numbers – Different Air Carriers***

Recommendations (Best Practices)

The following are the Best Practices to AVOID Similar Call Sign confusions:

- Train Pilots to **avoid shortening Air carrier Names** (Ex: Compass vs. Compass Rose)
- **Avoid** Call Signs to include **Taxiway Characters**
- **Avoid** Call Signs having **Flight Level Values** (see ICAO Doc 8585)
- **Avoid** Call Signs having any **Runway Values**

Questions ?



Back up Slides.....



LVO/ SMGCS Protected Low Visibility Taxi Route Development

Presented to: ATC Procedures Advisory
Committee

By: Bruce McGray, AFS-410

Philip Saenger, Andrew Burns, Sally Frodge

Date: May 6,7, 2014



Federal Aviation
Administration



Overview

- **Review overarching EFVS/LVO/SMGCS End Goal**
- **FAA Handling The Airport Provided Operational Environment**
- **MASPS considerations and task examples**
- **Protected Low Vis Taxi Routes (PLOVTR)**



Review overarching EFVS/LVO/SMGCS End Goal

Some approach credit has been issued. We intend to achieve ground credit.

Without EFVS



With EFVS



FAA Operational Underpinning for EFVS Low Visibility Operations

- **To protect *high speed – low visibility operations on the runway,***
- **And insure no uncontrolled operation anywhere in airport movement area**



FAA Focus is on the Airport Environment

Our focus is to determine under 8000.94 guidance and AC 120-57A how to set up unique protected low vis taxi routes



FAA 8000.94 Provision 11c for PLOVTR

- Any use of emerging technologies as a suitable substitute for established LVO/SMGCS requirements will undergo a specific HQ review and approval to determine whether the technologies meet an FAA determined Equivalent Level of Safety (ELOS).
- For unique situations regarding detection capabilities for LVO/SMGCS, the FAA/regional LVO/SMGCS team is to forward recommendations through the regional Flight Standards division for consultation with and concurrence of ARP, AVS, and ATO.



Any use of emerging technologies as a suitable substitute for established LVO/SMGCS requirements will undergo a specific HQ review and approval to determine whether the technologies meet an FAA determined Equivalent Level of Safety (ELOS).

FAA 8000.94 Guidance for PLOVTR



AC 120-57A 6b Provision for PLOVTR

Airport Evaluation. ... no two airports/aircraft alike, LVO/SMGCS working group review the existing:

- airport layout, facilities, IFR restrictions & mins, airport ops procedures

...prior to development of airport LVO/SMGCS plan.

- Compare existing & planned ops capability with guidelines of this AC
- Determine what additional measures are necessary to achieve the desired low vis ops



More AC-157A Support PLOVTR

- Advanced technologies for below 600 feet RVR operations [now 500 ft RVR 8000.94] (e.g., enhanced vision systems (EVS), head-up-display systems (HUD), forward looking infrared systems (FLIR), and global positioning system (GPS)).



The bottom line – 100% Accurate crew positioning



The Standard

The crew, during all ambient day and night visibility conditions, is able to maintain continual correct aircraft positioning:

- **by signage/lighting/markings, or**
- **by recognition of unique taxiway/runway/intersections and identification of topographical features, or**
- **a combination thereof**



Complications to Analyze

- The field of regard and overall limited performance are the complications that put the devil into the details that SC-213 needs to consider in defining the MASPS
- The threat of bending metal as a result of limited field of regard in conditions where the out the window is only 300 ft also will affect how SC-213 defines the MASPS



The FAA/Airports Challenge

- Not possible to have a universal rule. Every airport/situation/EFVS unit may cause variations in what will work and what controls may or may not have to be put in place



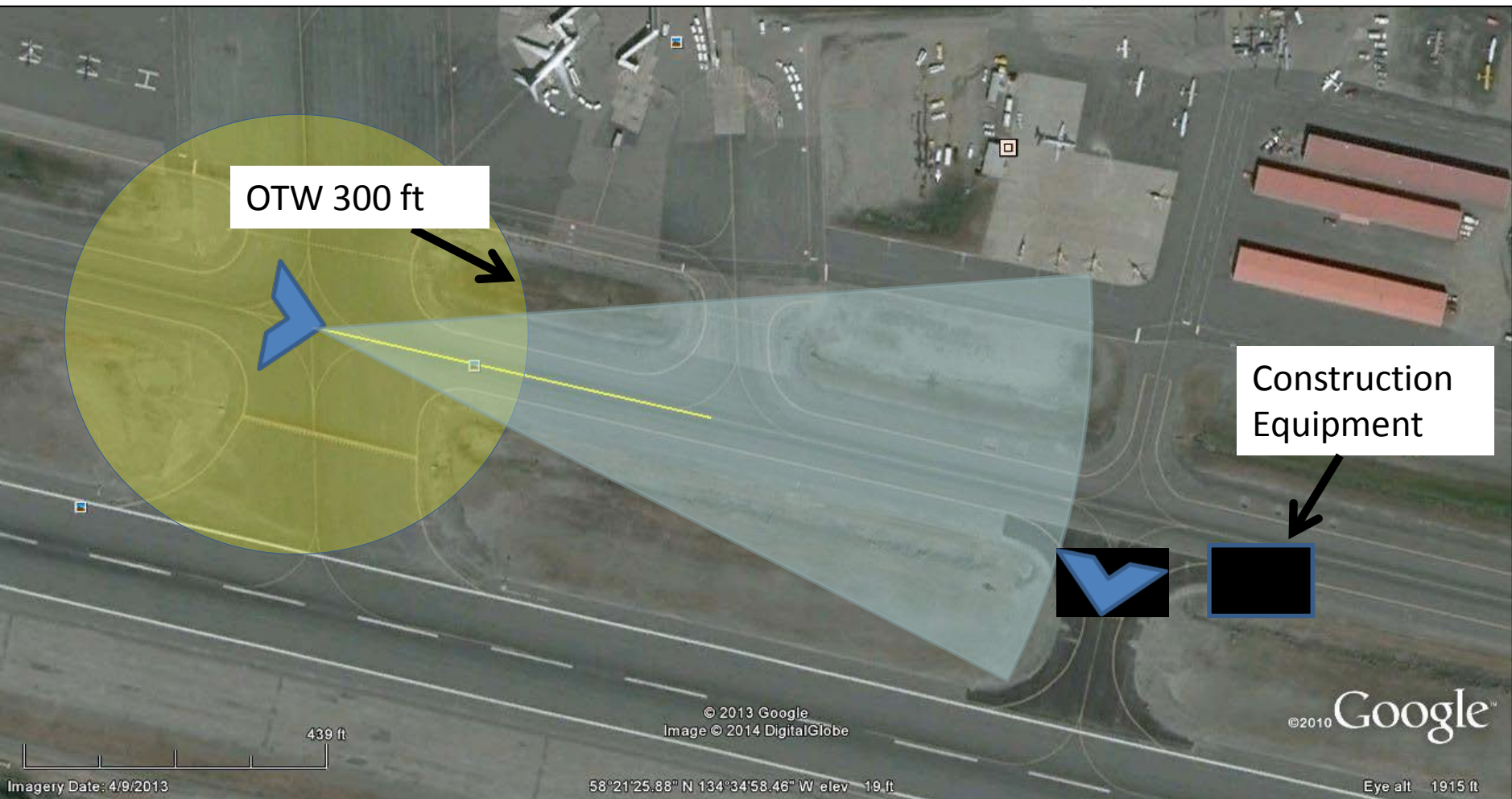
Clear to the right, Captain



Still Looks Clear, Captain



FOR Versus Wingtip Clearance

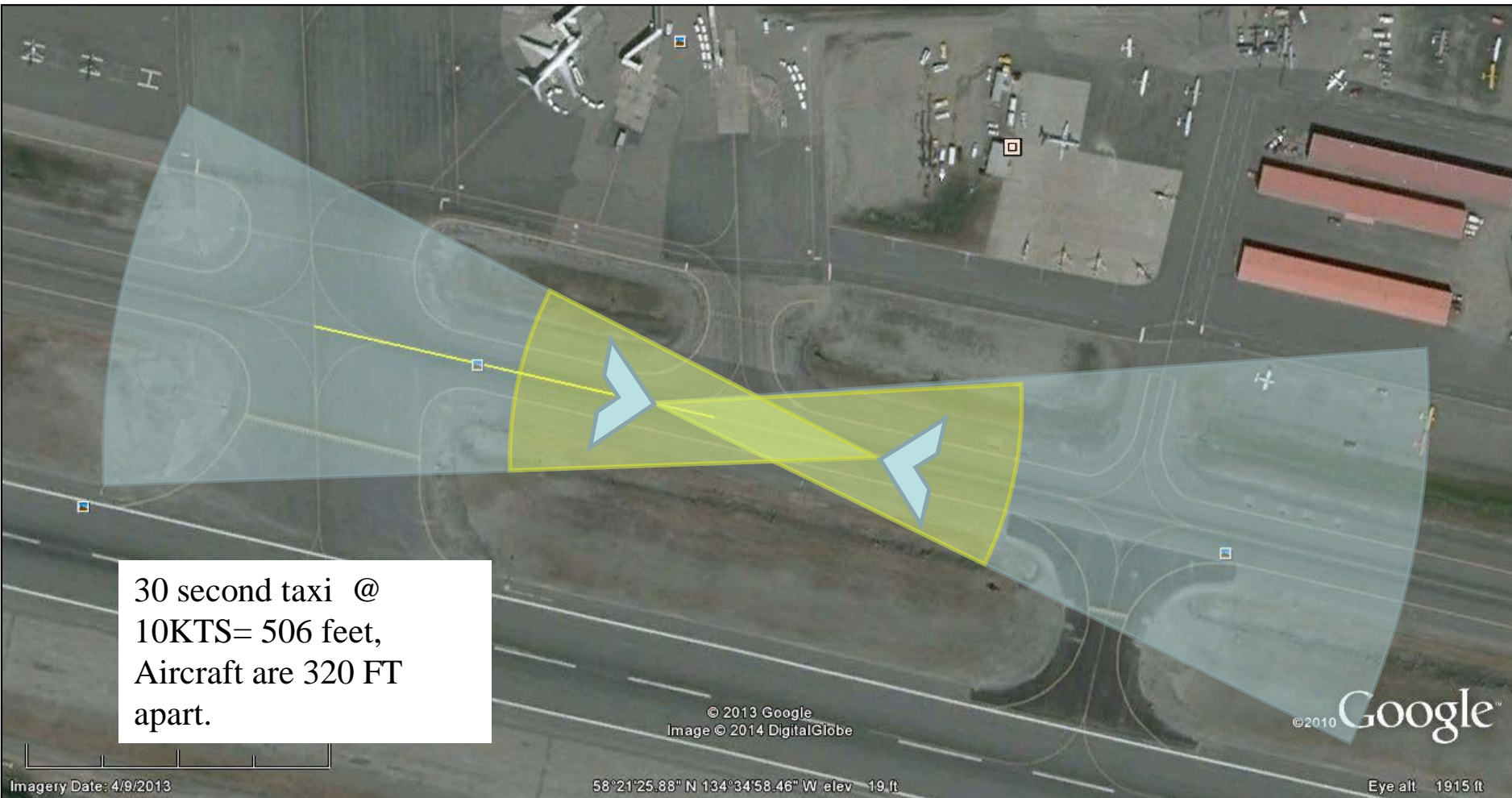


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500(Yellow) & 1200 FT (Blue)- 30 degree FOR



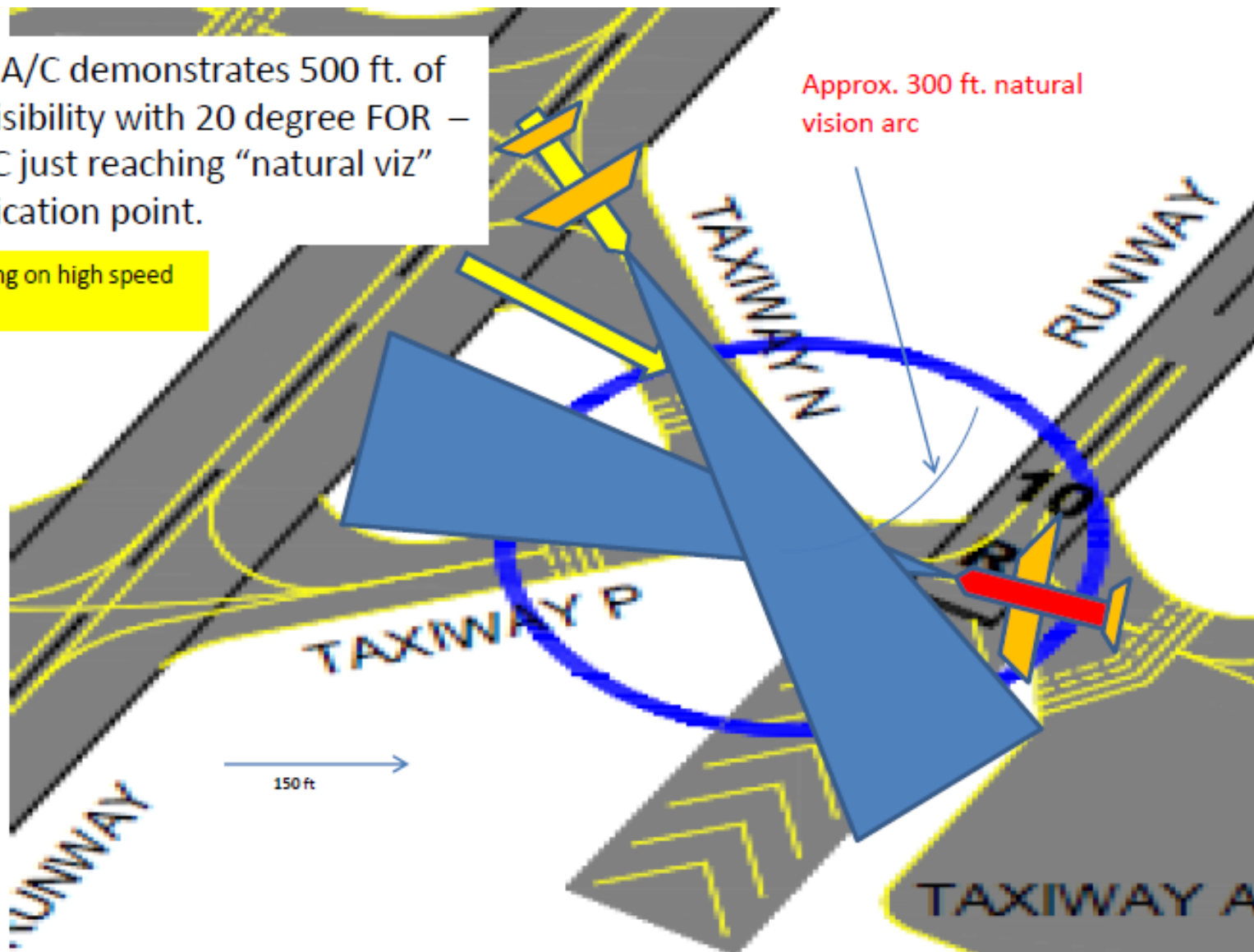
500 & 1200 FT- 30 degree FOR



Yellow A/C demonstrates 500 ft. of EFVS visibility with 20 degree FOR – red A/C just reaching “natural viz” identification point.

AC exiting on high speed taxiway

Approx. 300 ft. natural vision arc



PLOVTR Process Items

- **Airport layout/ surface traffic patterns**
- **Air traffic procedures used for current LVO**
- **Surface lights, markings, signs for runways, taxiways**
- **Equipment, procedures, training to support (ARFF)**
- **Ground support vehicle ops low visibility conditions.**
- **Protection of ILS critical areas and obstacle free zone.**
- **Snow removal equipment routes & priorities during LVO**



PLOVTR Process Items

- **adequacy of airport charts / use of advanced technologies**
- **Unique location weather features/vis measurement**
- **Extreme LVO User rates per event**
- **Blocking unauthorized access and unused routes**
- **Determination of specific EFVS/EVS mitigations**
- **Decision on RGLs/enhanced markings needed**





Next the EFVS Ops Demo



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Philip.ctr.Saenger@faa.gov

Andrew.ctr.Burns@faa.gov

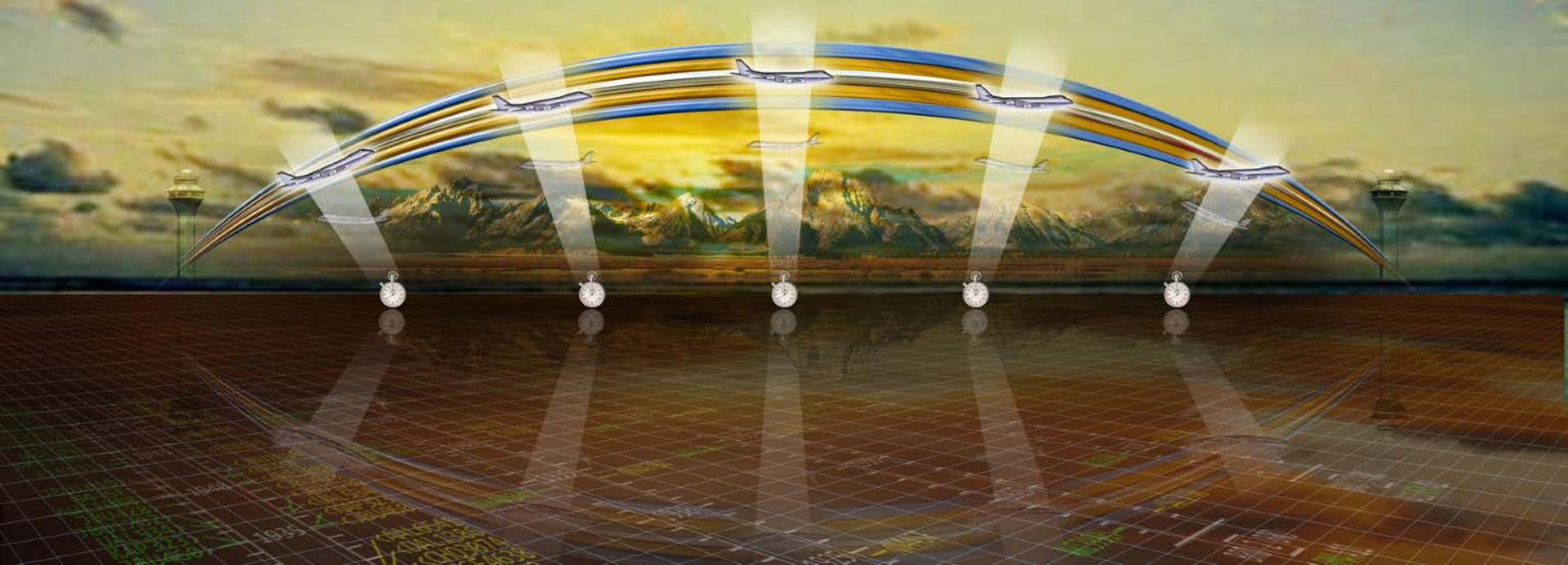
Sally.Frodge@faa.gov





TB FM

Time Based Flow Management





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TBFM Future Capabilities
Time Based Flow Management

IDAC
Integrated
Departure and
Arrival Capability

RNAV/RNP
Area Navigation
and Required
Navigation
Performance

**Extended Metering,
Coupled Scheduling,
Speed Advisory and Path
Stretch,...**

supported routes available for equipped aircraft.

**Info -Sharing via
SWIM, National
Training, and
(Policy, Procedures,
Process)...**



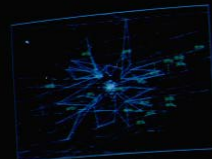
Future TBFM Capabilities

All future enhancements to the TBFM platform face the challenge of integration with NexGen Operations and procedures.

TBFM Locations after Re-Architecture

Air Route Traffic Control Center (ARTCC)		Terminal Radar Approach Control (TRACON)		Air Traffic Control Towers (ATCT)	
ZAB	Albuquerque Center	A80	Atlanta TRACON	ATL	Atlanta ATCT
ZAU	Chicago Center	A90	Boston TRACON	BOS	Boston ATCT
ZBW	Boston Center	C90	Chicago TRACON	BWI	Baltimore Washington Int
ZDC	Washington Center	CLE	Cleveland TRACON	CLE	Cleveland ATCT Hopkins Apt (GUI off CLE)
ZDV	Denver Center	CLT	Charlotte TRACON	CLT	Charlotte ATCT (GUI off CLT)
ZFW	Fort Worth Center	CVG	Cincinnati TRACON	CVG	Cincinnati ATCT (GUI off CVG)
ZHU	Houston Center	D01	Denver TRACON	DAL	Dallas Love ATCT
ZID	Indianapolis Center	D10	DFW TRACON	DCA	Ronald Regan National Apt
ZJX	Jacksonville Center	D21	Detroit TRACON	DEN	Denver ATCT (GUI off D01)
ZKC	Kansas City Center	I90	Houston TRACON	DFW (E)	DFW Tower East ATCT (GUI off D10 fiber)
ZLA	Los Angeles Center	L30	Las Vegas TRACON	DFW (W)	DFW Tower West ATCT (GUI off D10 fiber)
ZLC	Salt Lake Center	M98	Minneapolis TRACON	DTW	Detroit ATCT (GUI off D21)
ZMA	Miami Center	MCO	Orlando TRACON	EWB	Liberty ATCT
ZME	Memphis Center	MEM	Memphis TRACON	FLL	Ft Lauderdale ATCT
ZMP	Minneapolis Center	MIA	Miami TRACON	HPN	Westchester County - White Plains Apt
ZNY	New York Center	N90	New York TRACON	IAD	Dulles ATCT
ZOA	Oakland Center	NCT	Northern California TRACON	IAH	Houston Int. ATCT (GUI off I90)
ZOB	Cleveland Center	P50	Phoenix TRACON	JFK	JFK ATCT
ZSE	Seattle Center	P80	Portland TRACON	LAS	Las Vegas ATCT (GUI off L30)
ZTL	Atlanta Center	PCT	Potomac Consolidated TRACON	LAX	Los Angeles ATCT
	20 - ARTCCs	PHL	Philadelphia ATCT/TRACON	LGA	La Guardia ATCT
		S46	Seattle TRACON	MEM	Memphis ATCT (GUI off MEM)
		S56	Salt Lake TRACON	MIA	Miami ATCT (GUI off MIA)
		SCT	Southern California TRACON	MCO	Orlando ATCT (GUI off MCO)
		T75	St. Louis TRACON	MSP	Minneapolis ATCT (GUI off M98)
			25 - TRACONS	ORD	O'Hare ATCT
				PHL	Philadelphia ATCT/TRACON (GUI off PHL)
			Radar Input only facilities	SAN	San Diego ATCT (Lindbergh)
			No controller workstations	SEA	Seattle ATCT (GUI off S46)
		ACK	Nantucket Radar (K90 TRACON)	SFO	San Francisco ATCT
		ABE	Allentown ATCT/TRACON	SLC	Salt Lake ATCT (GUI off S56)
	6 - Input TRACON Sites	ACY	Atlantic City TRACON	STL	St. Louis ATCT
		MDT	Harrisburg int. ATCT/TRACON	TEB	Teterboro Apt
		MKE	Milwaukee ATCT/TRACON		33 - ATCTs
		SBN	South Bend ATCT/TRACON		



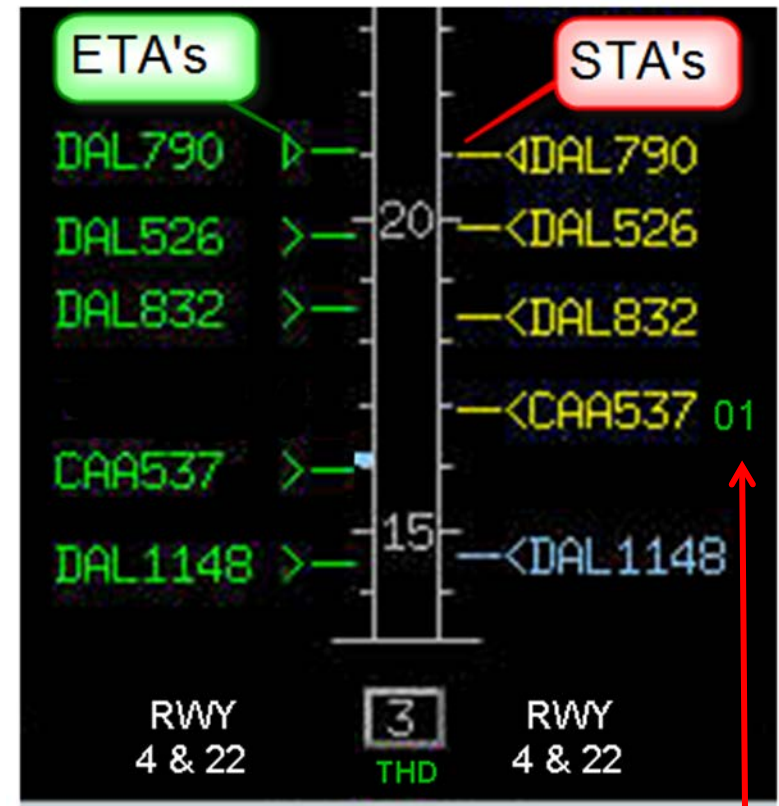


Estimated Time of Arrival (ETA):

An “un-delayed” time the aircraft will get to the threshold or meter fix, given its current position, velocity, route of flight, and effect of winds, without taking into account other aircraft or restrictions

Scheduled Time of Arrival (STA):

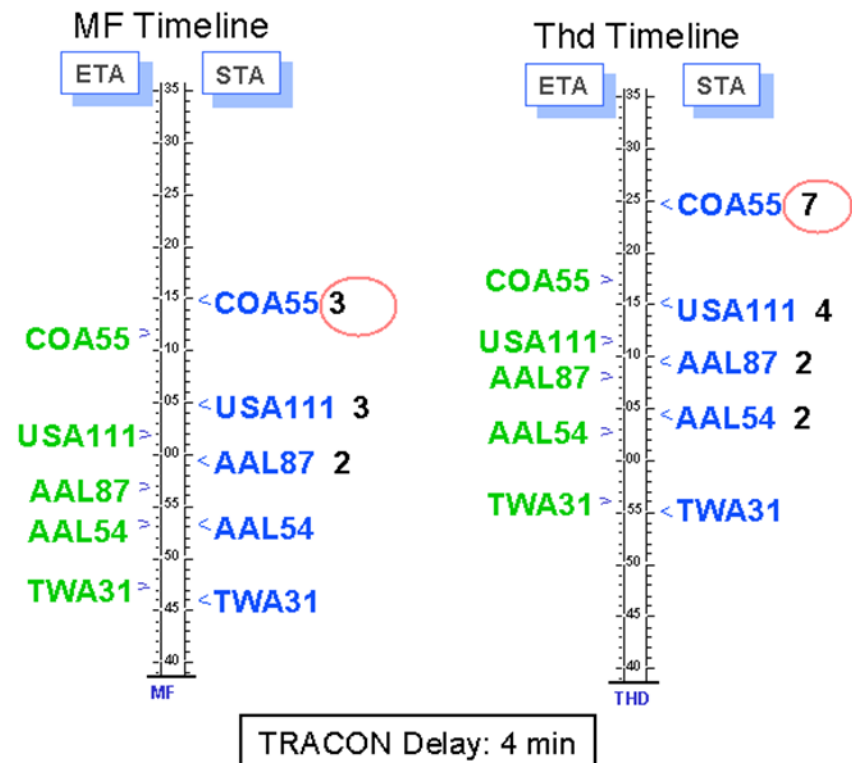
A modified or computed arrival time taking into account the other traffic to the metered airport, as well as airspace and airport constraints.



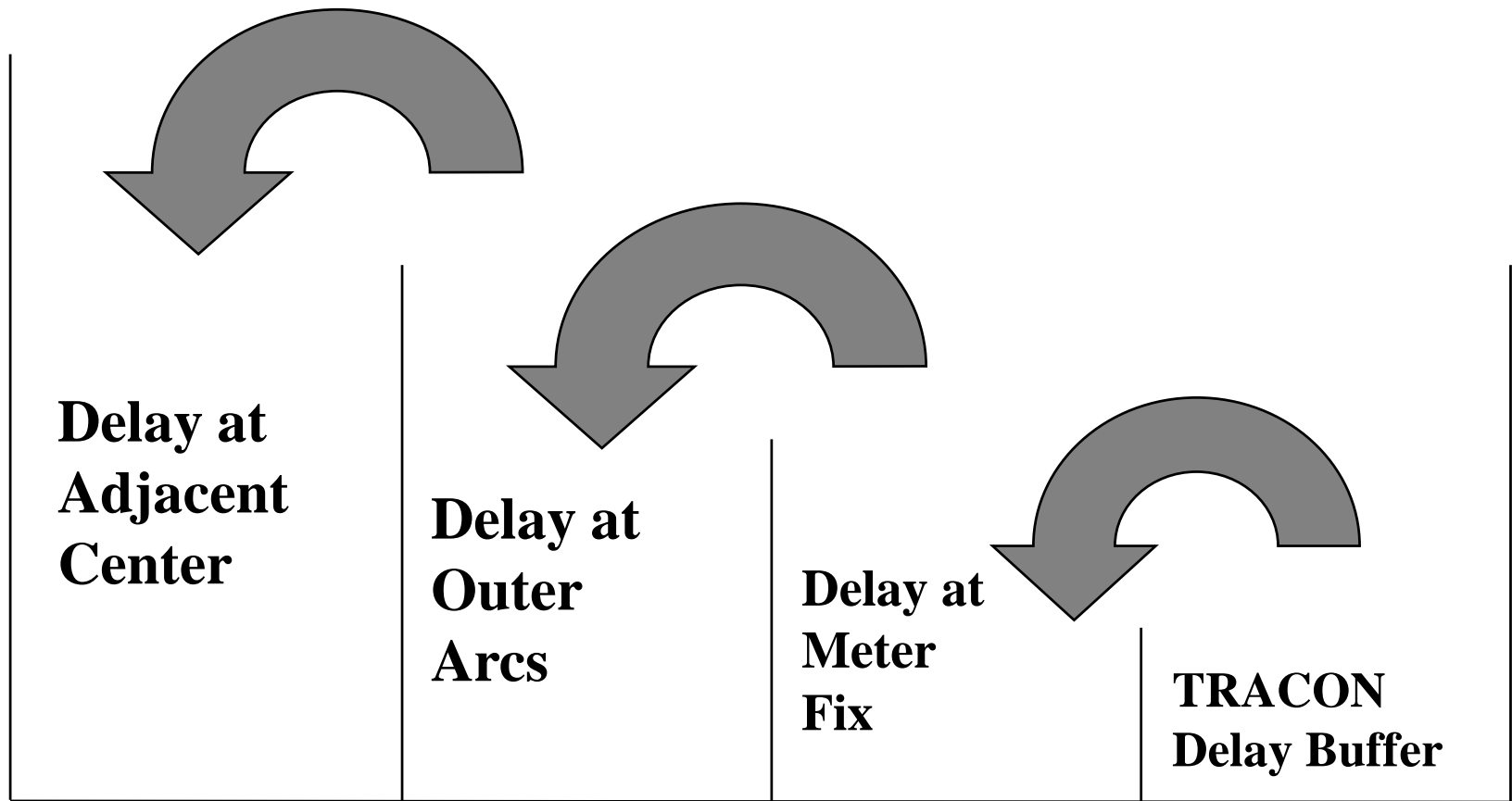
CAA537's ETA is one minute sooner than the STA, therefore CAA537 shows a one minute delay

Delay Distribution

- When delays exceed a *predetermined value* that can no longer be absorbed by the TRACON, the Center starts delaying aircraft in its airspace.
- This *predetermined value* is the TRACON delay buffer, or the Route Maximum Delay, which allows a delay buffer to be specified for routes from each meter fix.



How Delay Times are Distributed



Time Based Flow Management (TBFM)

TBFM Update Briefing

Presented to: ATPAC 148

By: Brian T Holguin

National TBFM Operations Team Lead

Date: May 2014



Federal Aviation
Administration



Update

- **TBFM De-Icing Procedure Status**
- **National TBFM Training Progress**
- **ATSAP CAR (Corrective Action Request) 2013-007 OPDs**
- **TBFM Metering Profile vs OPDs**
- **GIM-S**
- **National TBFM Operations Team Activities**
 - OAPM
 - MML HITL
 - ZAB Discovery Site
 - Other
- **Other and Next Steps (i.e. TBFM Study Team Briefing)**



Update



TBFM National 7210.3 De-Icing Document Change Proposal (DCP)



TBFM DE-ICING DCP-Status

FAA National Order 7210.3 10-1-12 currently states that Aircraft operators at LADP airports are responsible for complying with issued Expect Departure Clearance Time (EDCT) times.

- Current DRAFT DCP language proposes that:
 - Aircraft operators at LADP airports would be responsible for complying with Expect Departure Clearance Times (EDCTs) and/or Time Based Flow Management (TBFM scheduled departure release times and will not be exempted from compliance with these times.
 - In cases where an EDCT program and TBFM scheduling are in affect for the same airport, the TBFM scheduled departure release time would be given priority.

TBFM DEICING DCP-Status

AJT-2 Terminal Manager Non-Concur

- The nature of TBFM release times does not facilitate getting a time before the aircraft enters deicing. Flight progress strips are printed 30 minutes before the flight is scheduled to depart with an EDCT. Airline operators use that EDCT to schedule the deicing of that aircraft.
- TBFM release times cannot be issued that early due to the overhead stream not being established. During a snow event, an aircraft should never be held on the ground after deicing to meet a release time.
- Next steps; seek concurrence to modify language that reflects operational safety concerns when De-Icing and requirement to achieve updated TBFM departure times



National TBFM Training Progress



Training Goals

- **Promote a greater understanding of TBFM by developing a "National" training program to include **National Vision and Priority****
- **Enable Traffic Management Coordinators (TMCs) to utilize TBFM to provide more efficient flow management and maximize available airspace**
- **Provide a baseline for consistent use of TBFM across the system**
- **Improve the collaboration and working relationship between the TMCs and the Air Traffic Controller Specialists (ATCSs)**
- **Foster an effective use of TBFM to promote increased safety and efficiency within the National Airspace System (NAS)**
- **Understand the impact of the actions taken by TMCs and controllers on each other.**



Training Audience

- **Three FAA Audiences**

- Cadre (SME - Subject Matter Expert)
- Facility Level Traffic Management Personnel
 - TMC – Traffic Management Coordinator
 - STMC – Supervisory TMC
 - NTMO - National Traffic Management Officer
 - TMS - Traffic Management Specialist
- ATCS - Air Traffic Control Specialist / FLM - Front Line Manager



National TBFM Training

- **TBFM (TMA) National Training Development:**
 - Process
 - Training Team has met monthly since Fall 2013
 - 6 SME's (ATS) from Field Facilities, National TBFM Ops Team, and ATCSCC included to ensure technical expertise
 - Weekly Telcons conducted to expedite course development
 - Design Phase (Course Design Guide)
 - Development- ATCS Course Content has been completed
 - TMC Lessons 1, 2, 3, 4, 5, 7, and 8 have been constructed in story board format for final review (12 lessons total)
 - Progress is on target to meet scheduled delivery dates for course material
 - Estimated ATCS/TMC Cadre Training to Begin mid September 2013



ATSAP CAR 2013-007 (OPDs)



OPD CAR Request (AJI-15)

- Request for “ Statistics on OPD problems, including any sector saturation, charting issues, etc.; ATSAP reports (including original reports with the CAR and any since then), and any other reports on OPDs. The work group is working on a revised response to safety issues in reference to OPDs.” Items include problems with traffic spacing, training, publishing of OPD speed/altitude changes, and procedures to take aircraft off of, and re-establish back, on the OPD.
- The information is utilized by a working group including NATCA, AJI, AJV, AJR, and others, in developing a hazard mitigation plan and revised response to ESA Event Review Committee (ERC) for CAR 2013-007.



TBFM Metering Profile before and after OPDs

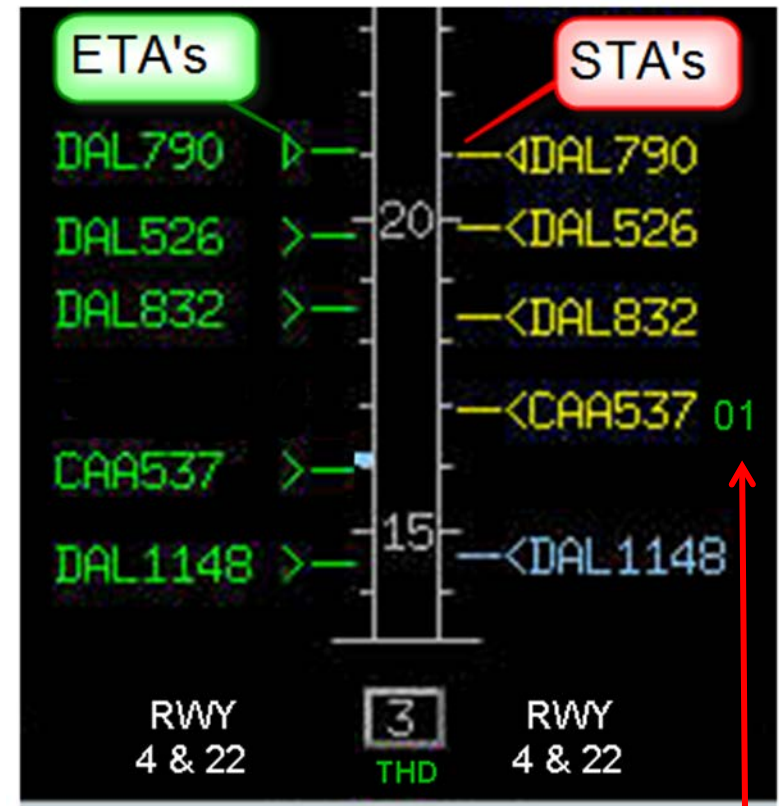


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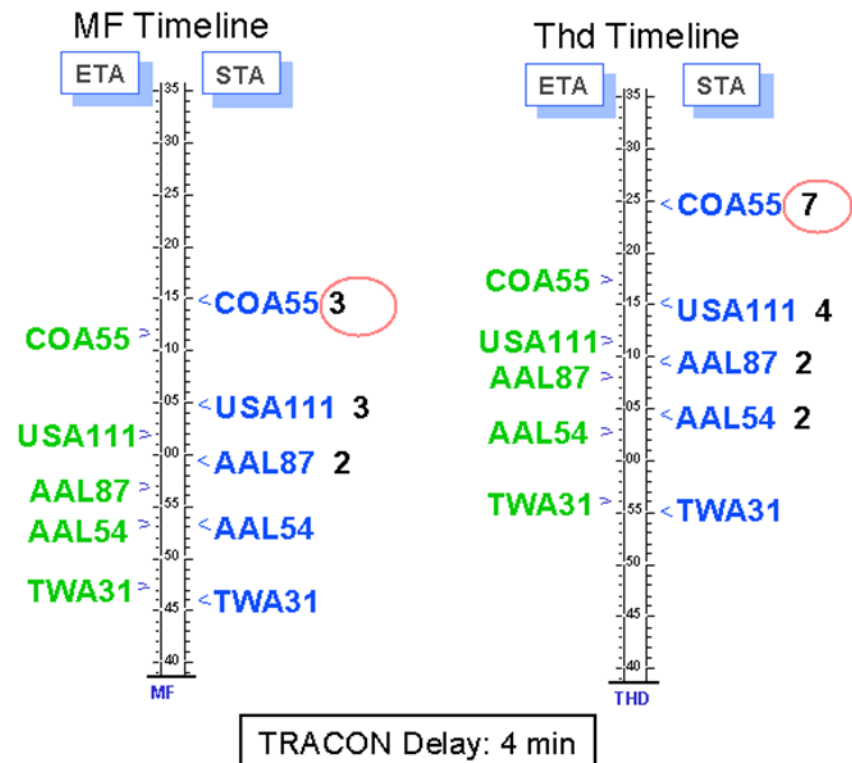
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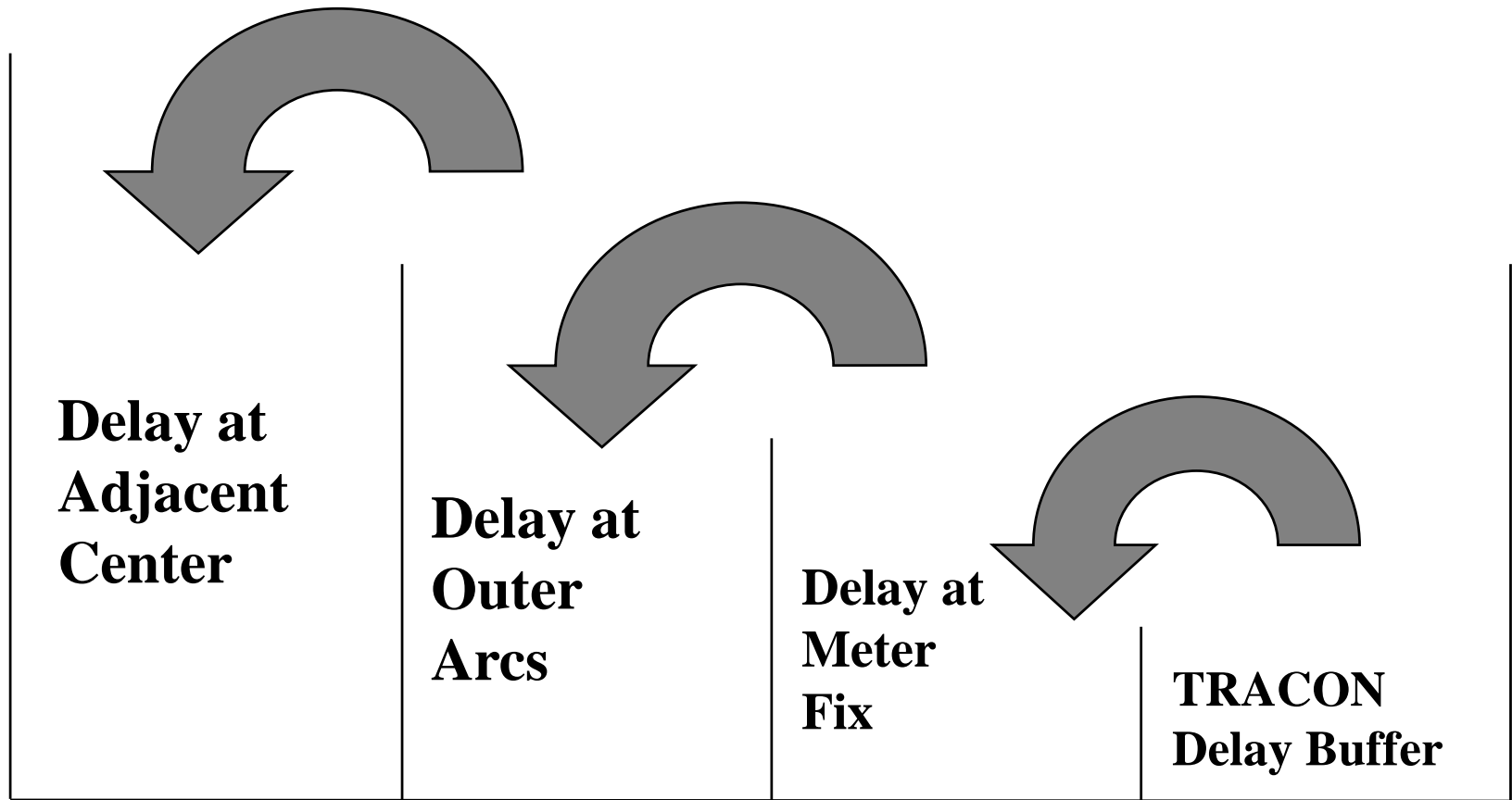
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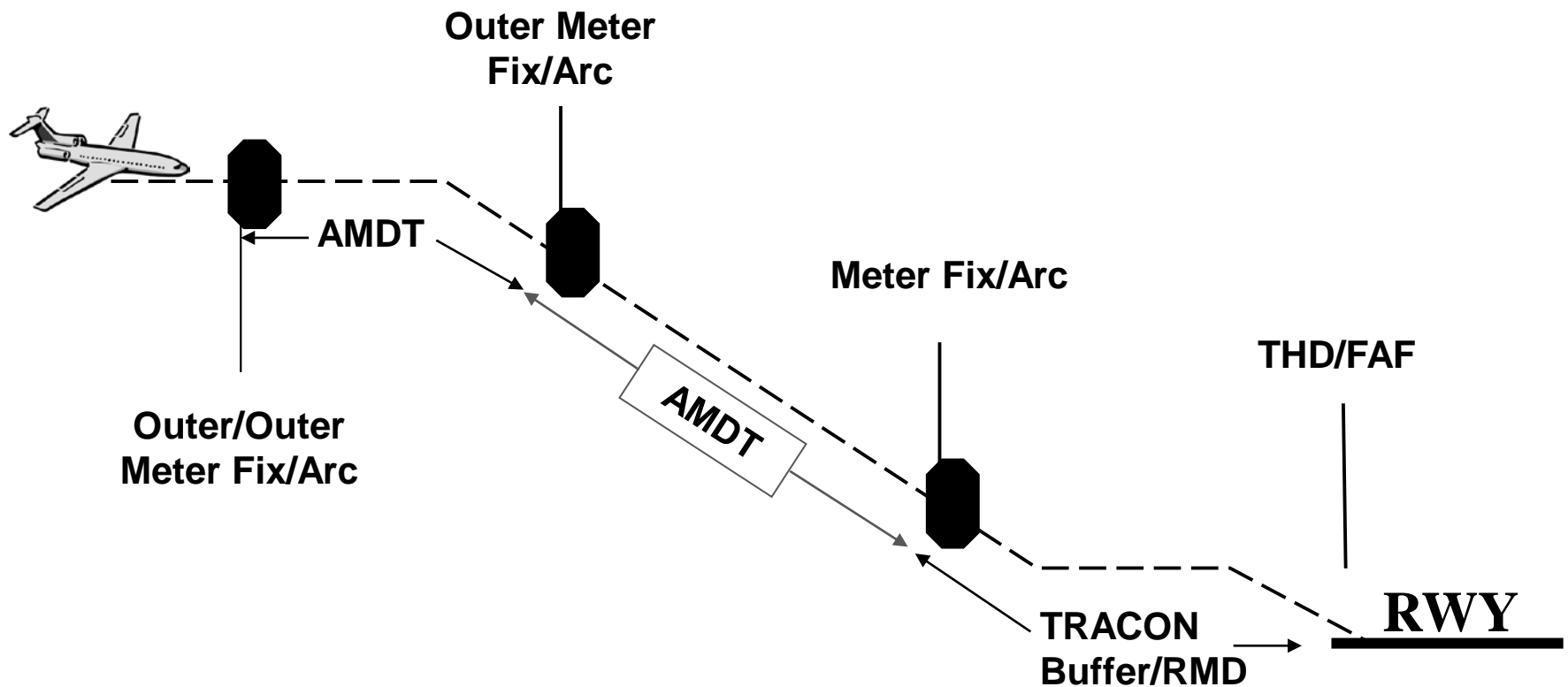
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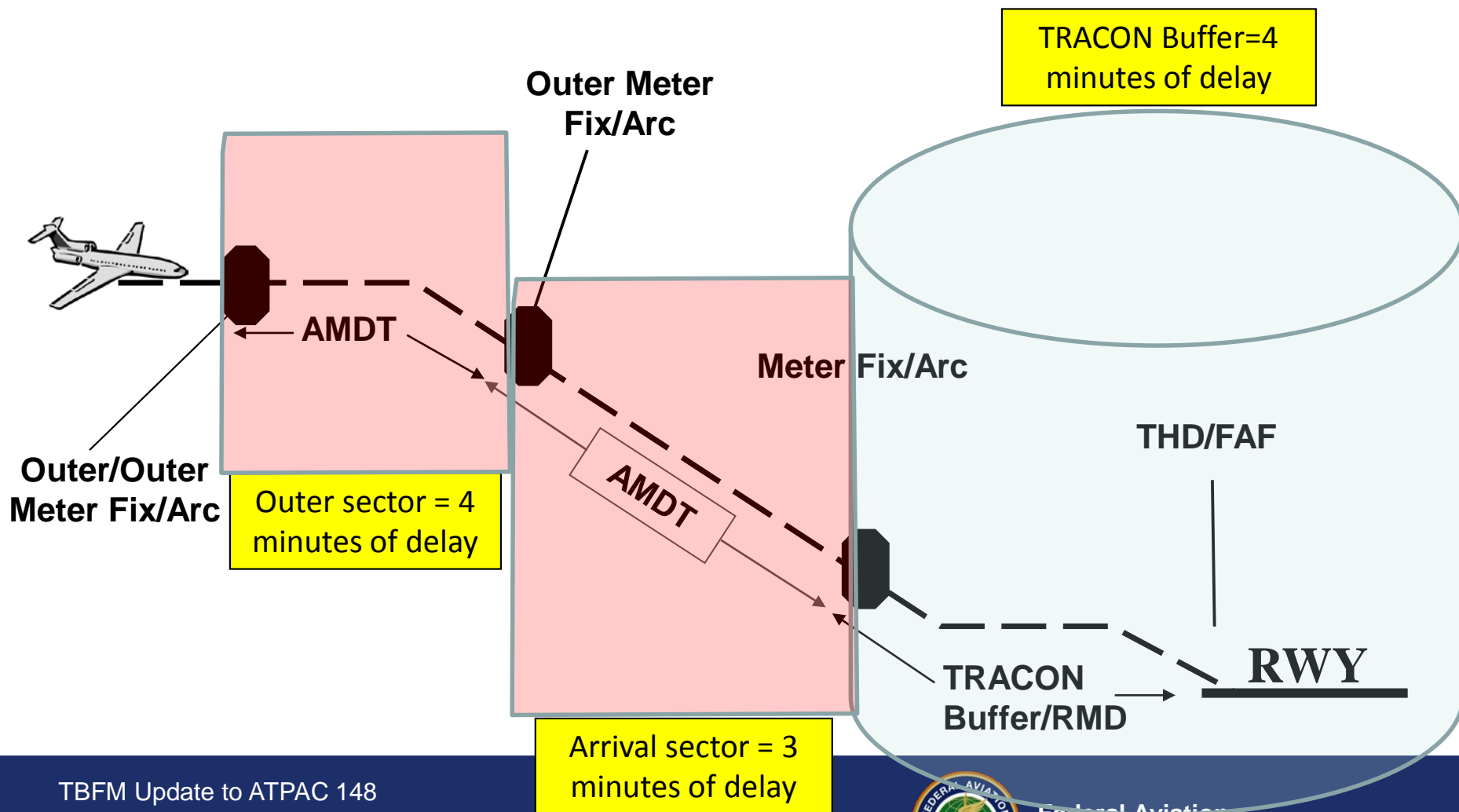
How Delay Times are Distributed



TBFM Metering Profile

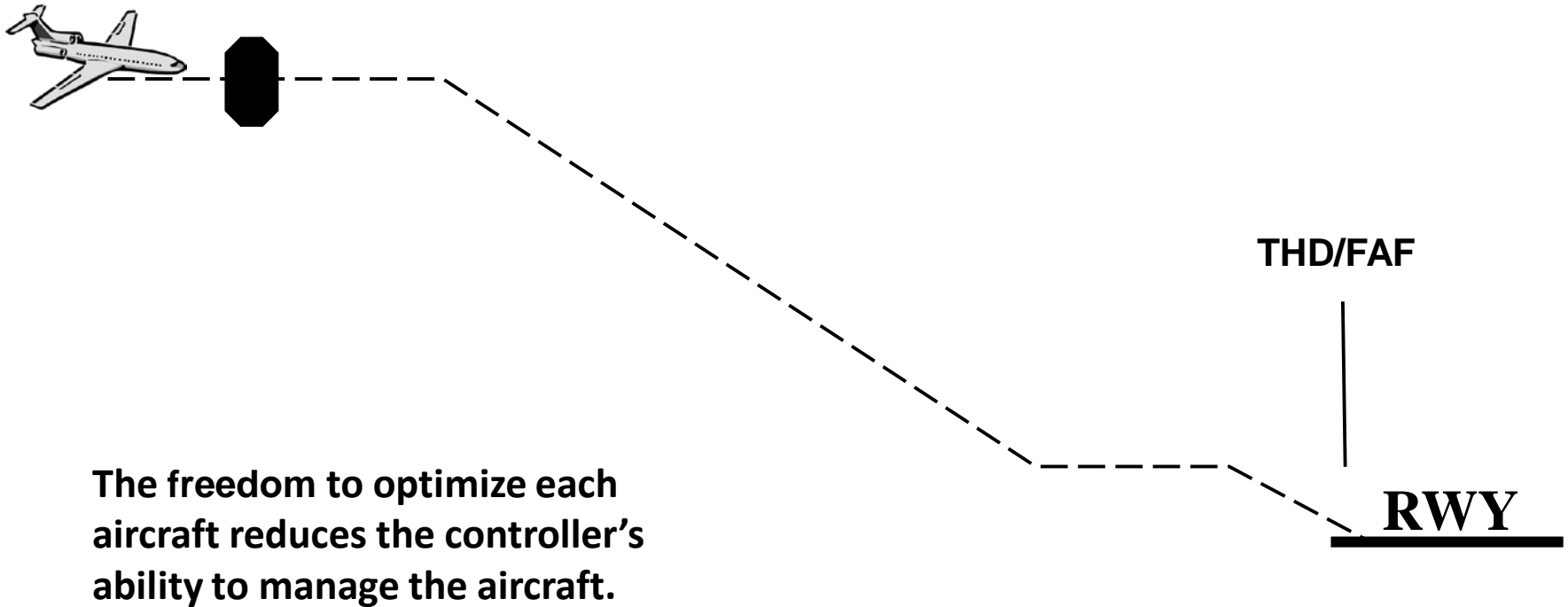


Current Metering Delay Allocation



OPD Descent Profile

With OPD's, aircraft are given a "Cleared via" clearance and descend from Top Of Descent at a flight profile optimized to the operating capability of the aircraft, with low engine thrust settings and, where possible, a low drag configuration, thereby reducing fuel burn and emissions during descent.



GIM-S (Speed Advisories)



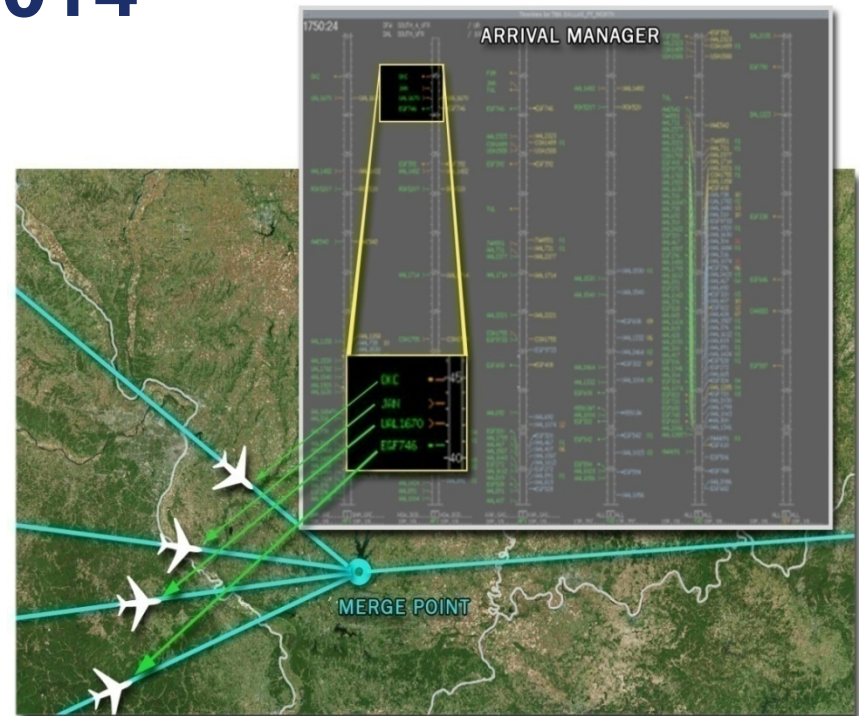
Ground Interval Management – Spacing IOC 2014

Purpose: Improve metering operations at ARTCCs by providing consistent flow of aircraft to the Meter Fix

Goal: Achieve optimal spacing intervals between arriving aircraft using an ATC based spacing/metering tool

Objective: Ensure NAS implementation of GIM-S functionality to begin benefits accrual

Partners: TBFM, ERAM, SBS, SLE, ZAB, TBFM Ops, ERAM Ops

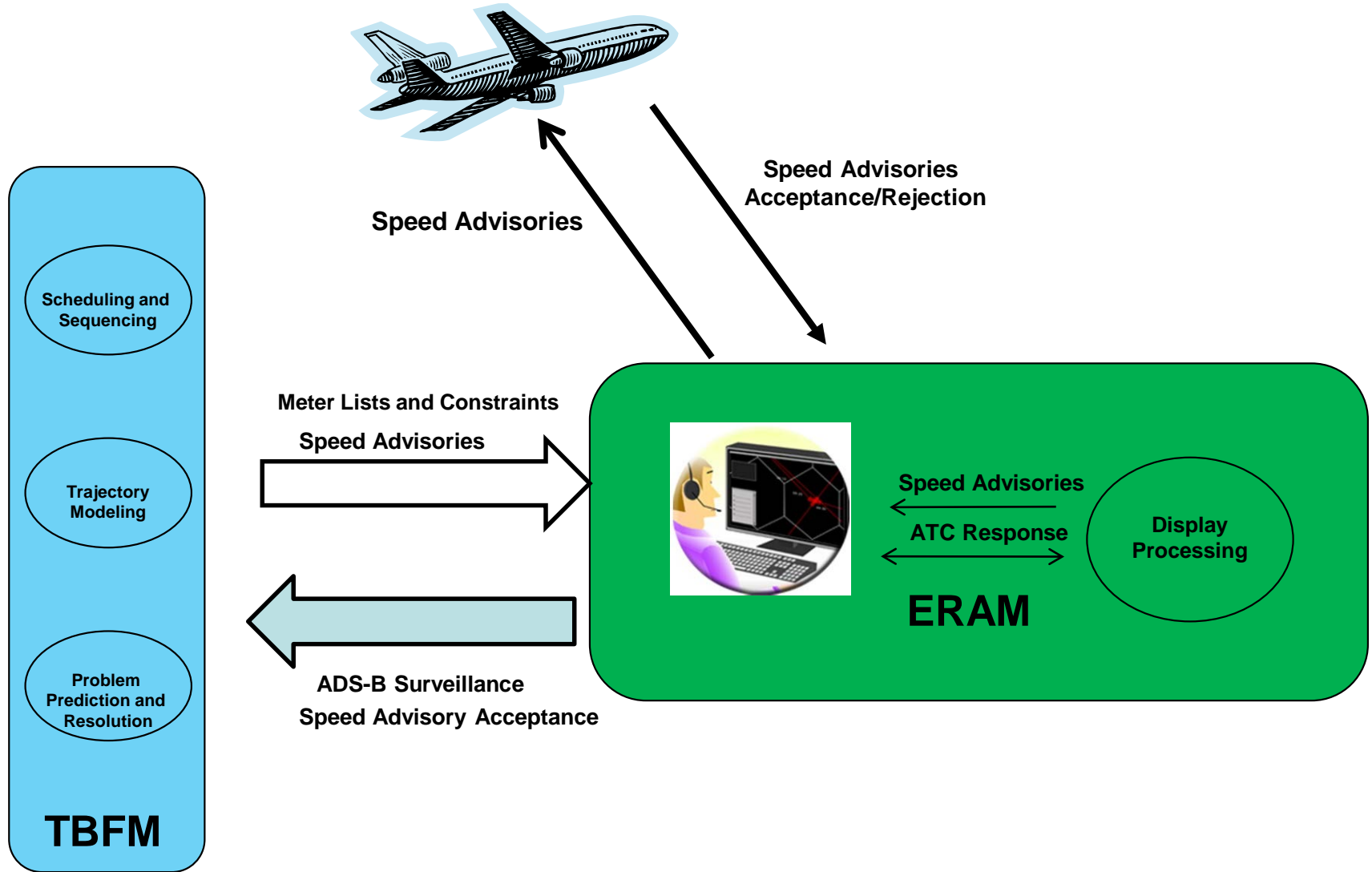


TBFM Update to ATPAC 148
Washington DC, May 2014

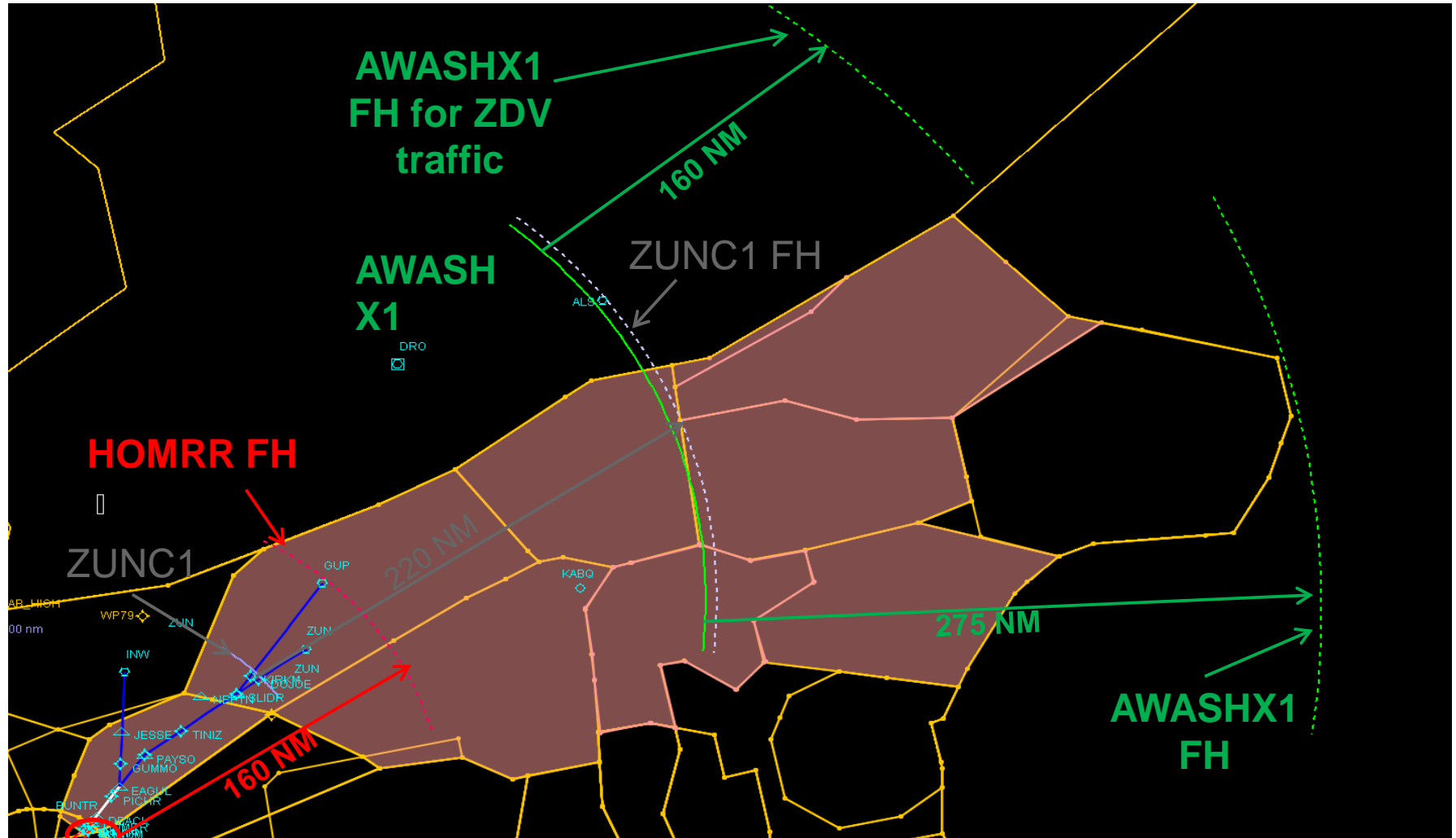


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GIM Architecture



Proposed ZAB Adaptation



**HOMRR -
MFX**

TBFM Update to ATPAC 148
Washington DC, May 2014



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GIM-S Roll-Out

- **Sept 2014 IOC**

- Coupled Schedule, Extended Metering, and Speed Advisories on EAGUL arrival to PHX

- **Post IOC**

- Candidate sites include ZLA, ZDV, and ZOA
 - Validate Multi Center Metering functions beginning in FY15
 - Command and Control and T2T Communication.
- Coupled Scheduling, Extended Metering, and Speed Advisories appropriate for PHX, DEN, LAX, LAS, SFO, and SAN

National TBFM Operations Team Activities



National TBFM Operations Team SME Duties and Responsibilities:

National Time Based Flow Management (TBFM) Operations Team



Appendix 01: NATIONAL TBFM OPERATIONS TEAM SME DUTIES & RESPONSIBILITIES

Serves as a Time Based Flow Management (TBFM) / Traffic Management Advisor (TMA) subject matter expert (SME) on the National TBFM Operations Team; responsible as the primary interface between the Program Management Organizations (PMO) TBFM/TMA Program Office and field operations concerning current and future TMA software releases and other national initiatives. He/she is required to complete weekly, monthly, and post-trip activity reports, and utilize operational expertise in the review and evaluation of technical documents, engineering assessments, and designs for future TMA enhancements. The incumbent resolves highly complex issues and unique problems that significantly impact air traffic operations and procedures –these solutions often require facilitation of cross-domain collaborative efforts including planning and monitoring multiple activities and programs.

Additional duties may include participation as follows:

- Participate as SME as required to influence paradigm transition from MIT to Time-Based-Flow Management (TBFM) system-wide
- Complete Weekly, Monthly, and Post-Trip Activity Reports
- Participate as SME regarding KSAT (Key-Site Acceptance Test) preparation and testing
- Participate as required on sub-teams including TBFM/TMA current and future software releases:
 - Adjacent Center Metering (ACM)
 - Coupled Scheduling (CS)
 - Re-Architecture
 - Extended Metering (XM)
 - IDAC (Integrated Arrivals and Departures)
- Participate on Safety / SRM Panels as directed regarding TBFM/TMA releases
- Participate on weekly Site Report (field reported problems) telecons
 - Utilize Ops Team SRM Process with regard to remedy of issues
- Review technical documents, engineering assessments, and designs for future enhancements.
 - Translate learning and communicate to field facilities
- Facilitate meetings as appropriate. May include National Training for TBFM, Procedures, other
- Provide expertise and assist ERC in review and response to ATSAP reports involving TBFM/TMA
- Participate in Site Assessments
 - Review of Local adaptation and Operating Practices/Procedures/SOP
- Participate as SME in TMA equipment testing at LM
- Facilitate interaction between Second Level Engineering (SLE), field site FAST personnel, and TBFM/TMA POCs to resolve issues
- Participate as SME with interactions concerning OAPM and RNAV/RNP
- Facility reviews
- Telecons Listing:
 - Site Reports (SR) / Site Working Group (SWG)
 - Problem Reports (PRs)
 - Systems Engineering Analysis Request (SEAR)
 - System Issue Group (SIG)
 - Functional Discription (FD)
 - Other, including NextGen initiatives

National Time Based Flow Management (TBFM) Operations Team



Telecom Interaction and Participation:

Site Reports	A weekly Telcon held every Tuesday at 2:00pm EST, typically an hour in length. Involves: Review reports and participate on SWG (Site Work Group) Telcons.
PR's-Problem Report	Telcons held weekly on Tuesdays at 10:00am EST, typically last 1-2 hours as part of SWG Telcon. - PRs are those reports that come in from the field identifying TMA issues identified through daily use. These reports are reviewed for action, and also drive future software development of TMA (at a minimum).Review, Comment and telcons-Associated w/SWG.
SEARs-Systems Engineering Analysis Request	Review documents, provide feedback/recommendations, and participate on Telcons. SEAR is the Program Office written response to provide information about a problem or concept. These are ad-hoc meetings/Telcons based on need, which typically require a one week commitment a quarter to participate on "go-to" Telcons to review and comment on the data presented.
SIGs-Systems Issue Group	Review documents; provide feedback/recommendations, and Telcons. A SIG is usually part of the SEAR process, and is Lockheed Martin's written response to issues found at English Creek and Key-Site Testing activity. Schedules for these events are ad-hoc, as described under the SEAR process.
Functional Description	Review documents and provide Comments-IDAC, Extended Metering (Functional descriptions have been written and reviewed) currently working the development of IDAC thru "agile process" and these FD's are reviewed and reworked as needed thru development. The time commitment for this is a bi-weekly Telcon

Interaction with other NEXGEN Programs, ie-OAPM/OPD, WP3, RNAV/RNP- are assigned as required.



Discussion and Questions

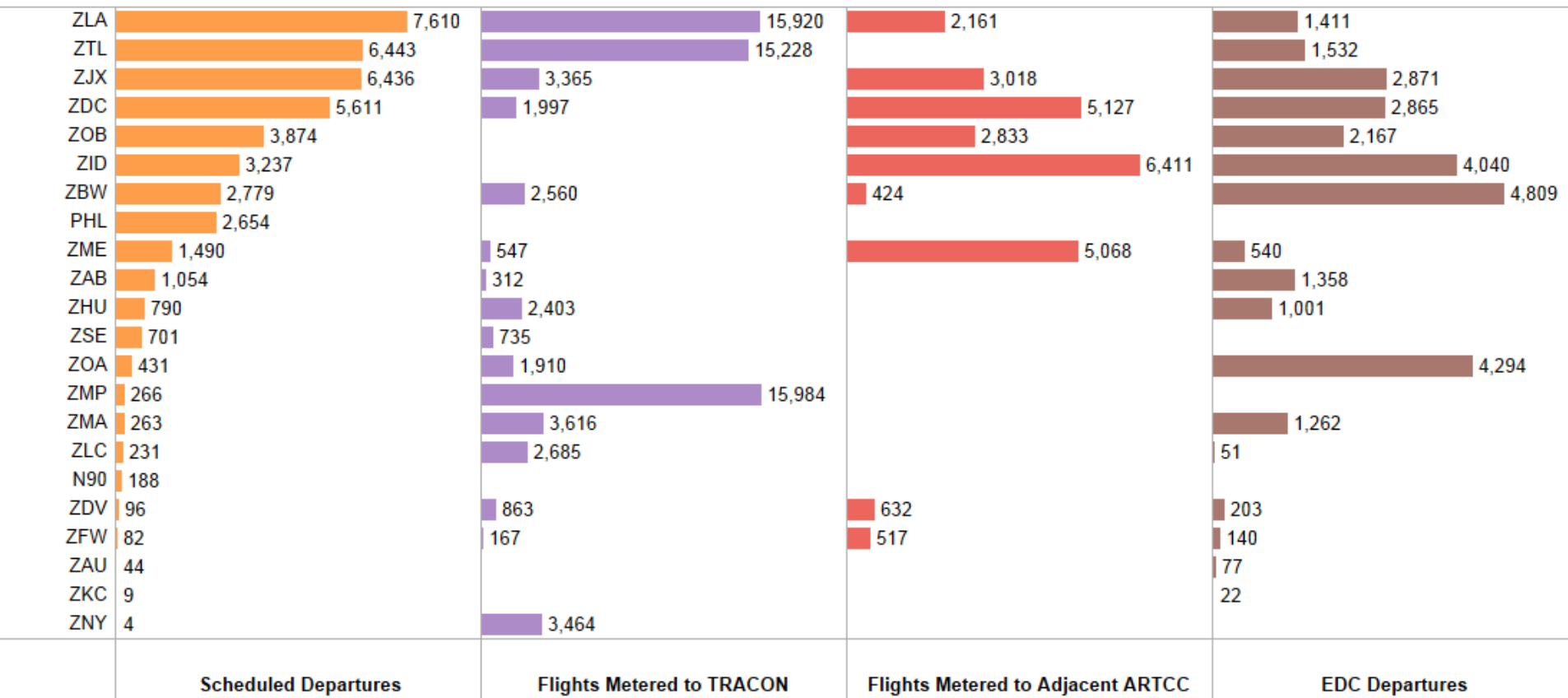


Backup Slides

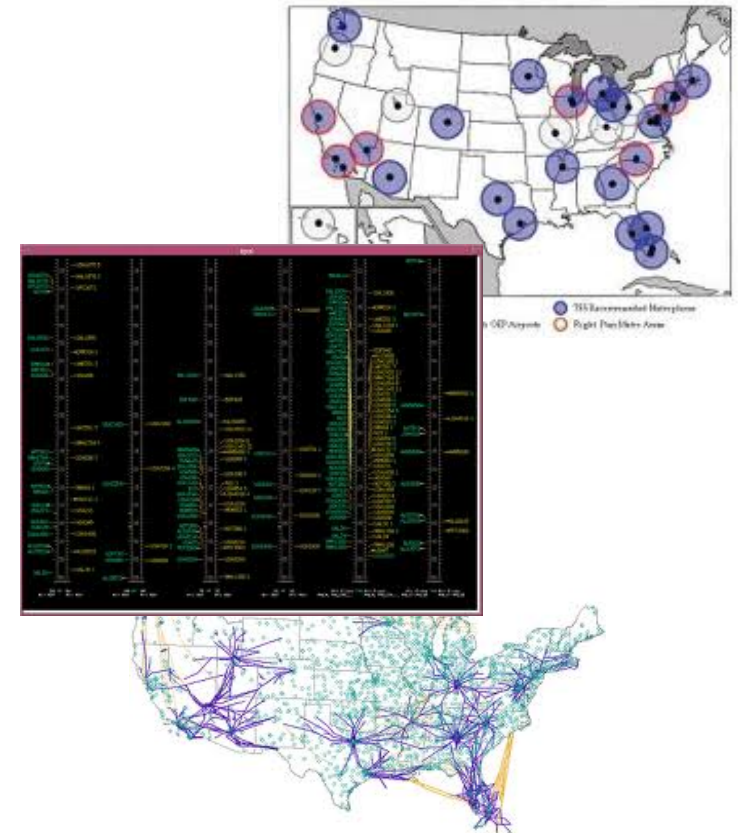
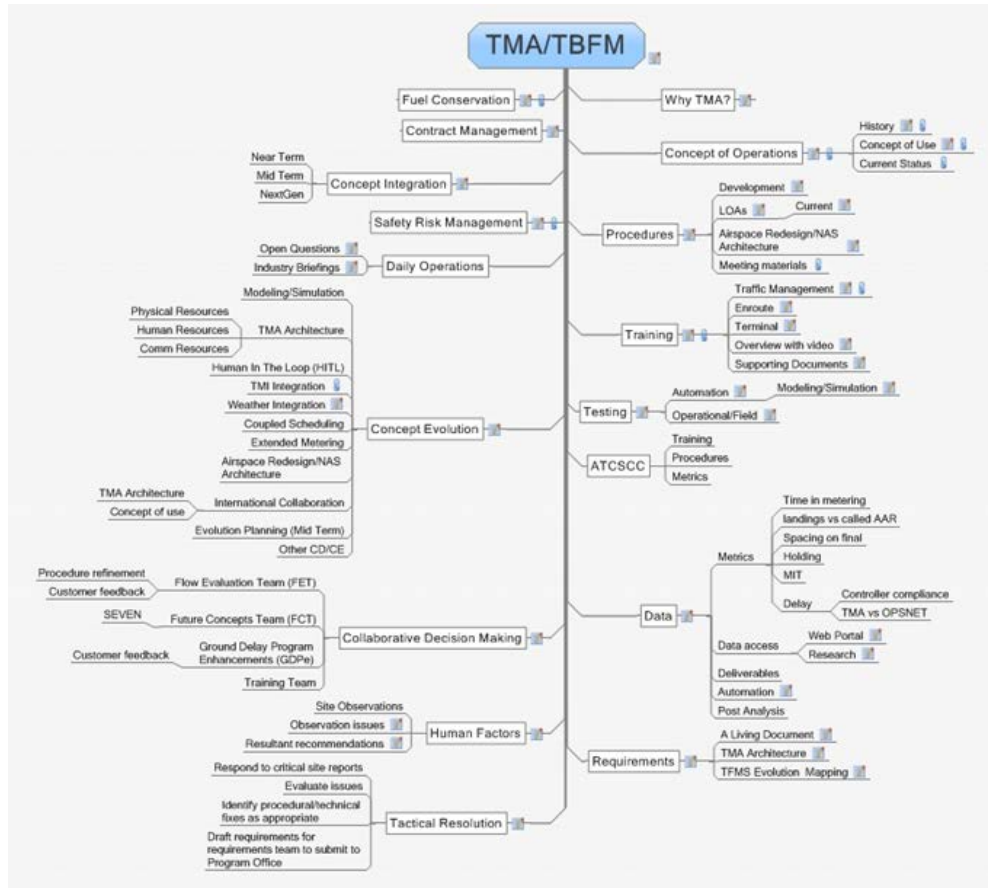


TBFM Use by Facility

TBFM Use by Facility: December 2013

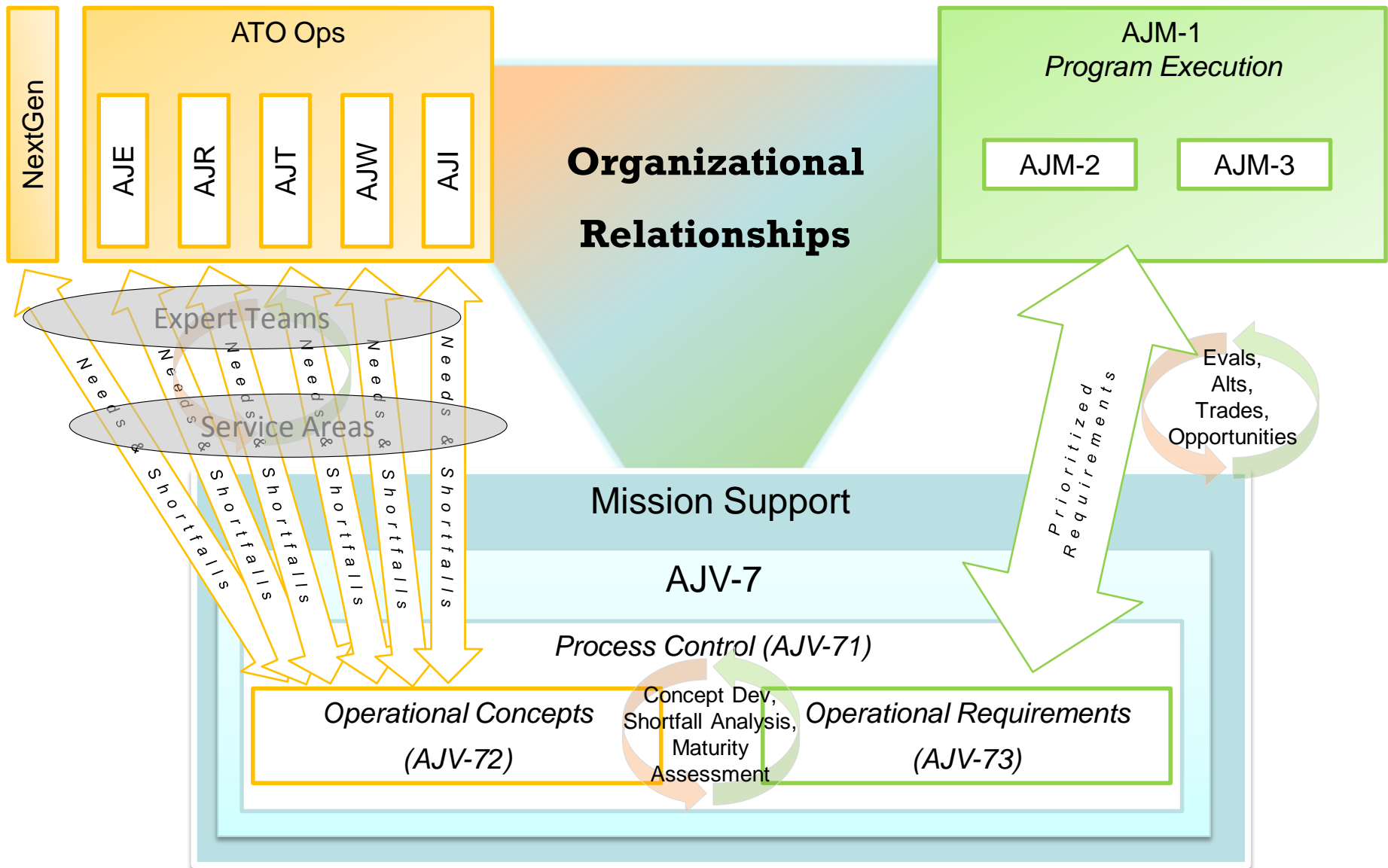


Organizational, Human/Machine, Operational, Cultural, Economic, ...



Different Goals, Objectives, and Perspectives

- **Portfolio Management – problem oriented**
 - Scope the problems
 - Define the concept – shortfall linkages
- **System Engineering – requirements oriented**
 - Explain the functions
 - Drive the requirements
 - Account for dependencies
- **Program level – acquisition focused**
 - Explain the timeline
 - Drive the activity pace
- **Operational – Policy, Procedures, and Processes (P3), and of course Training and Requirements for Usage**
 - Explain the operation as a use case
 - Capture the different operating conditions (nuance or modes)
 - Establish Best Practice



Discontinuation of World Aeronautical Charts (WAC)

An Initial Discussion

Presented to: Air Traffic Procedures Advisory
Committee (ATPAC)

By: Guy Copeland, AeroNav Products

Date: May 7, 2014



Federal Aviation
Administration



Background

- **FAA Strategic Initiatives include “delivering more efficient, streamlined services.”**
 - Sub-initiative: Right-size the NAS
 - Analyze demand for products
 - Consider obsolescence of products due to technological advances
 - Note any duplication of effort



External Factors

- **Digital-Visual Charts (d-VC) availability**
 - Sectionals (2002)
 - TACs (2003)
 - WACs (2010)



External Factors

- **Advancement of technology**
 - Release of the iPad (February 2010)
- **Electronic Flight Bags (EFB)**
 - Moving map technology with seamless charts



External Factors

- Use of WACs by the leading EFBs

	Garmin Pilot	ForeFlight	WingX	AOPA FlyQ
TACs	X	X	X	X
Sectionals	X	X	X	X
WACs	X			



Other External Factors

- **The National Geospatial-Intelligence Agency (NGA) stopped ordering the WAC product series in June 2012**
 - Using Sectionals and EFB
- **NGA is responsible for a significant percentage of our product sales**



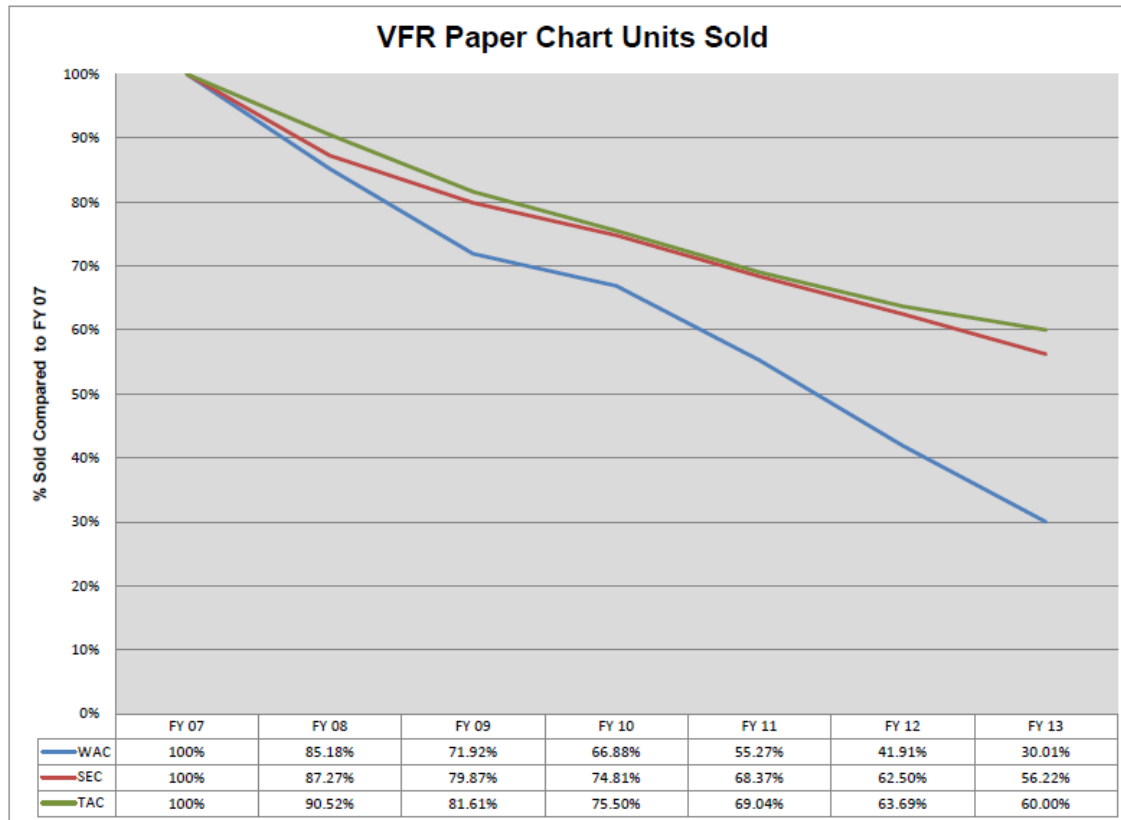
Internal Factors

- **The cost to produce the WACs has generally remained the same.**
- **Reduced resources (personnel).**



Declining Sales

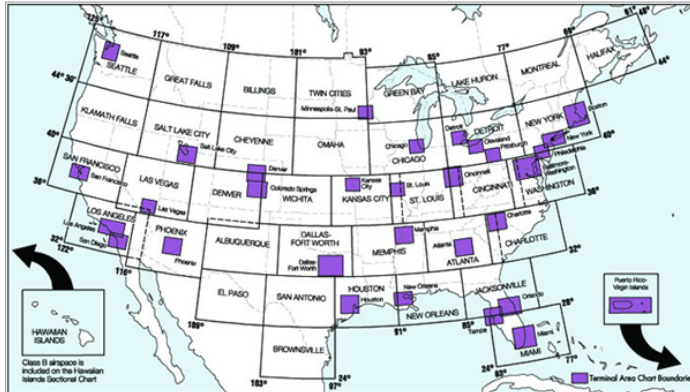
- WAC paper sales have been declining at a more rapid pace than other products



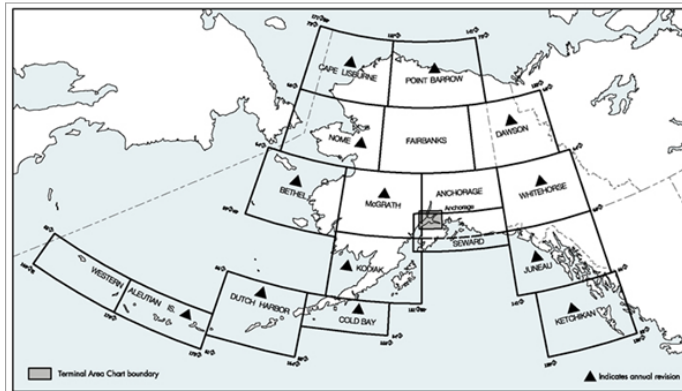
Duplication of Effort?

- Sectional and WAC coverage:

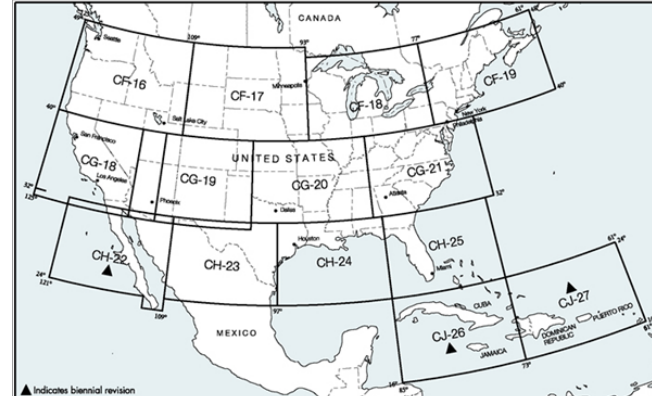
US Sectional and TAC Charts



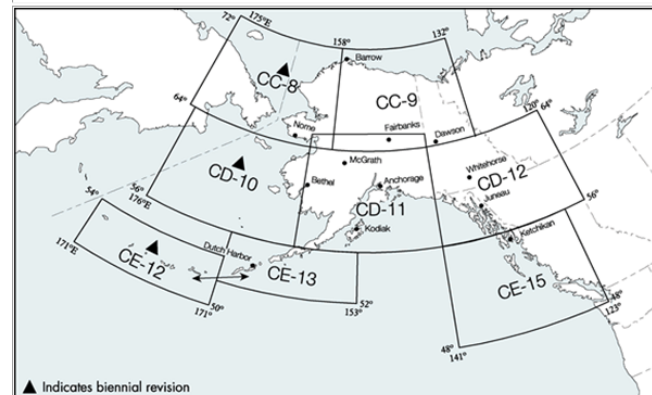
Alaska Sectional and TAC Charts



US WAC Charts



Alaska WAC Charts



Recommendation

- **Discontinue the production of World Aeronautical Charts, except:**
 - Where obligated by international agreement
 - Where US territory does not have sufficient alternative coverage
- **NEXT STEPS: Public comment period in Federal Register and additional internal FAA assessments.**
- **REMINDER: These are the first public forum discussing points for this initiative.**



Questions/Comments?



Questions/comments to: guy.copeland@faa.gov 301-427-5499 VFR Charting Team, AJV-322



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